# 科学研究費補助金成果（中間）報告書 (1)

# Research Report for Grant-in-Aid for Scientific Research

| | | | |
|---|---|---|---|
| 機関番号 | 33917 | 研究機関名 | 南山大学 |
| 研究種目名 | 基盤研究(C) | 研究期間 | 平成 20-22 年度 |
| 課題番号 | 20520397 | | |

## 機能範疇の獲得と文法理論への意義

## The Acquisition of Functional Categories and the Implication for the Grammatical Theory

平成 21 年 3 月

March, 2009

| 研究組織 | | |
|---|---|---|
| 研究代表者 | 村杉恵子 | 南山大学外国語学部教授 |
| 主な研究協力者 | 斎藤　衛 | 南山大学人文学部教授 |
| | Adriana Belletti | University of Siena |
| | Thomas Hun-Tak Lee | Chinese University of Hong Kong |
| | T.-H. Jonah Lin | National Tsing-Hua University |
| | Diane Lillo-Martin | University of Connecticut |
| | Luigi Rizzi | University of Siena |
| | Ian Roberts | Cambridge University |
| | William Snyder | University of Connecticut |
| | W.-T. Dylan Tsai | National Tsing-Hua University |

| 研究経費 | |
|---|---|
| 平成 20 年度 (2008) | 110 万円 |
| 平成 21 年度 (2009) | 70 万円（予定） |
| 平成 22 年度 (2010) | 160 万円（予定） |

研究活動報告
Activity Report

1．研究発表 (Presentation) (主なもの)

村杉恵子 (2008)「対照言語獲得研究からみる日本語」, The 10th Annual International Conference of the Japanese Society for Language Science (JSLS 2008), 静岡県立大学, 6 月 12 日.(基調講演)

村杉恵子 (2008)「記述から言語獲得理論へ(ケーススタディ)」, 第20回三重大学言語学コロキアム, 三重大学, 6 月 27 日.(招聘による発表)

Murasugi, Keiko and Eriko Watanabe (2008) "Case Errors in Child Japanese and the Implications for the Syntactic Theory", The 3rd Conference on Generative Approaches to Language Acquisition North America (GALANA III), University of Connecticut, September 6.

Dejima, Mayumi, Tomomi Nakatani and Keiko Murasugi (2008) "The Emergence of Speech Act Phrase: Evidence from a Longitudinal Study of two Japanese-Speaking Infants", Tsinghua-CUHK-Nanzan Joint Workshop on Comparative Syntax and Language Acquisition, Center for Linguistics, Nanzan University, September 18.

Murasugi, Keiko and Chisato Fuji (2008) "Root Infinitives in Japanese and the Late Acquisition of Head Movement", The 33rd Annual Boston University Conference on Child Language Development (BUCLD 33), Boston University, November 1.

Murasugi, Keiko and Chisato Fuji (2008) "Root Infinitives: The Parallel Route that Japanese-and Korean-speaking Children Step In", The 18th Japanese-Korean Linguistics Conference, City University of New York, November 13.

Murasugi, Keiko (2008) "Underspecification of Functional Heads in Language Acquisition",南山比較統語論国際共同研究プロジェクト:第1回ワークショップ, 南山大学, 11 月 23 日.

Murasugi, Keiko (2009) "What Japanese-speaking Children's Errors Tell Us about Syntax", Workshop on Theoretical Understanding of Language Acquisition, The 7th GLOW in Asia 2009, Hyderabad, India, February 28.(招聘による発表)

2. 論文(主なもの)

Dejima, Mayumi, Tomomi Nakatani and Keiko Murasugi (2008) "The Emergence of Speech Act Phrase: Evidence from a Longitudinal Study of two Japanese-Speaking Infants", ms. Nanzan University

Fuji, Chisato, Tomoko Hashimoto and Keiko Murasugi (2008) "VP-shell Analysis for the Undergeneration and the Overgeneration in the Acquisition of Japanese Causatives and Potentials", *Nanzan Linguistics* 4, pp.21-41.

Murasugi, Keiko (2008) "Sentential Modifiers in a Discourse-*Pro* Language", in Yoshiaki Kaneko, Akira Kikuchi, Daiko Takahashi, Yoshiki Ogawa and Etsuro Shima (eds), *Gengo Kenkyu no Genzai (The State of Art in Linguistic Research)*, Kaitakusha, pp.115-133.

Murasugi, Keiko and Koji Sugisaki (2008) "The Acquisition in Japanese Syntax", in Shigeru Miyagawa and Mamoru Saito (eds.), *Handbook of Japanese Linguistics*, Oxford University Press, pp.250-286.

Crain, Stephen, Rosalind Thornton and Keiko Murasugi (to appear) "Capturing the Evasive Passives", *Language Acquisition* 16(2) "Acquisition Archives."

Murasugi, Keiko and Chisato Fuji (to appear) "Root Infinitives in Japanese and the Late Acquisition of Head-Movement", *Boston University Conference on Language Development 33 Proceeding Online Supplement.*

Murasugi, Keiko and Eriko Watanabe (to appear) "Case Errors in Child Japanese and the Implications for the Syntactic Theory", *Proceedings of the 3rd Conference on Generative Approaches to Language Acquisition North America (GALANA3).*

# 収録研究論文目次

# Table of Contents



---

1 『言語研究の現在』 *(The State of Art in Linguistic Research)* (2008), pp.115-133 より再録。

2 Tsinghua-CUHK-Nanzan Joint Workshop on Comparative Syntax and Language Acquisition (2008 年 9 月 17 日、於：南山大学)での発表に基づく論文。

3 *Nanzan Linguistics* 4 (2008), pp. 21-41 より再録。

4 *Boston University Conference on Language Development 33 Proceeding Online Supplement* より再録。

5 *Japanese and Korean Linguistics 18* での発表に基づく論文。*Proceedings of JK 18* への出版にむけての初稿。

6 *Proceedings of the 3rd Conference on Generative Approaches to Language Acquisition North America (GALANA3)* より再録。

# Sentential Modifiers in a Discourse-*Pro* Language*

Keiko Murasugi

## 1. Introduction

Two analyses have been proposed for Japanese relative clauses: the base-generation analysis, and the movement analysis. The base-generation analysis is found in Hoji (1985), where he argues that the gap in a Japanese relative clause is never created by movement but is always an unpronounced pronoun. Ishii (1991), on the other hand, maintains that Japanese relatives can be, and in some cases, must be derived by the movement of a relative operator as in their English counterparts.

In this paper, I will overview Murasugi (1991) and my subsequent works, where I developed the base-generation hypothesis, and attempt to explain why Japanese relative clauses never involve movement. The basic proposal is that the category of an NP-internal sentential modifier is parameterized between CP and the category lower than CP, like TP. The former includes the landing site for the relative operator while the latter is

* I would like to take the opportunity to thank Masaru Nakamura for his advice and support, academic and moral, and for being our anchorage for over 25 years. I am grateful for his warmth and kindness, his guidance and encouragement, given to us in Tokyo, Tucson, Sendai, Higashiyama, and Nanzan. I also gratefully acknowledge the editors of this book, and all the colleagues I've met through him, although I cannot name them all here: Daiko Takahashi, Yoshiaki Kaneko, Akira Kikuchi, Sonoko Chiba-Takemori, and Hideo Hirano. I wish to thank Mamoru Saito for the discussions and suggestions on the topic discussed in this paper. The research presented in this paper was supported in part by Nanzan University Pache Research Grant I-A and by JSPS Grant-in-Aid (C) (#17520282).

*Gengo Kenkyu no Genzai*
*(The State of the Art in Linguistic Research)*

a bare sentence. Japanese chooses TP, and as a result, its relative clauses cannot involve movement because they lack the position for the relative operator to move to. I suggest further that Japanese is quite permissive in the kinds of modification relations between a noun and its sentential modifier. This leads to the possibility that Japanese relative clauses are not relative clauses in the usual sense, but simple sentential modifiers of nouns (as that in *the claim that John loves Mary*).[1] They have the appearance of relative clauses especially when they contain an unpronounced pronoun that happens to correspond to the head noun.

## 2. The Basic Properties of Japanese "Relative Clauses": The Absence of Movement

Kuno (1973) notes that Japanese relative clauses need not contain a gap as in (1), and that even when they contain a gap, they do not exhibit island effects that are observed with movement. The gap in (2) is contained in a relative clause within the main relative clause.[2]

(1) $[_{NP}\,[_{IP}$ syuusyoku -ga muzukasii] $[_{NP}$ buturigaku]]
getting job -Nom hard physics
'Physics, which is hard to get a job in.'

(2) $[_{IP}\,[_{NP}\,[_{IP}\,e_i\ e_j$ kiteiru] yoohuku$_j$] -ga yogoreteiru]
is wearing suit -Nom is dirty
sinsi$_i$
gentleman
'the gentleman who [the suit that he is wearing] is dirty'

He argues, based on the former fact, that what is required between the relative head and the relative clauses in Japanese is only the "aboutness

[1] Mihara (1994), on the independent grounds, proposes a structure virtually identical to the present analysis for the Japanese relative clauses. His proposal is based on the detailed examination of the head-internal relative clauses. See Murasugi (1994) for the analysis of head-internal relative clauses in Japanese.

[2] Note that the English counterparts of (1) and (2) are totally ungrammatical.

relation." Perlmutter (1972) demonstrates convincingly that nothing prevents the gap in a Japanese relative clause from being a *pro* (unpronounced pronoun), and hence, the gap need not be produced by movement. This accounts for the absence of island effects noted above.

Hoji (1985) proposes a stronger hypothesis based on the absence of connectivity or reconstruction effect with Japanese relatives. The connectivity effect in English relative clauses is illustrated in (3a).

(3) a. the picture of himself that John likes [*gap*] best
b. John likes the picture of himself

In (3a), the relative head (*the picture of himself*) is "connected" to the gap, and this makes it possible to interpret *himself* as *John*. This kind of connectivity effect is observed when a gap is produced by movement, but not with a pronoun, as the examples of topic construction in (4) illustrate.

(4) a. That picture of himself, John liked
b. *That picture of himself, John liked it

What Hoji observes is that the Japanese counterpart of (3) is out, as shown in (5).

(5) *[John$_i$-ga $e_j$ taipu-sita] [zibun$_i$-no ronbun]$_j$
-Nom typed self -Gen paper
'*Lit.* self$_i$'s paper that John$_i$ typed'

As he notes, this absence of connectivity effect constitutes evidence that Japanese relative clauses can never involve movement.

Further evidence for Hoji's hypothesis can be found when we examine relativization of adjuncts. First, (6) apparently shows that relativization of reason/manner adjuncts exhibit island effects, in distinction with relativization of arguments.

(6) a. *[$_{IP}$ [$_{NP}$ [$_{IP}$ $e_i$ $e_j$ kubi-ni natta] hito$_j$] -ga minna okotteiru]
was fired person-Nom all is angry
riyuu$_i$
reason
'the reason that [all the people who were fired (for it)] are angry'

b. *[$_{IP}$ [$_{NP}$ [$_{IP}$ $e_i$ $e_j$ mondai -o toita] hito$_j$] -ga minna
problem-Acc solved person-Nom all
siken-ni otiru] hoohoo$_i$
exam in fail method
'the method that [all the people who solved problem (by it)] fail the exam'

The grammatical status of these examples parallels that of the English (7a–b).

(7) a. *the reason$_i$ [that [all of the students who were fired $t_i$] are angry]
b. *the manner$_i$ [that [all of the students who solved the problem $t_i$] fail the examination]

This fact can be accounted for straightforwardly if *pro* can occur only in argument positions, and hence, (6a–b), as opposed to (2), must be derived by movement (See Saito (1985)).

But the restriction on the relativization of reason/manner phrases is much tighter. As shown in (8)–(9), they are clause-bound.

(8) a. [Mary-ga $t_i$ kaetta] riyuu$_i$
-Nom left reason
'the reason$_i$ Mary left $t_i$'
b. *[Mary-ga [John-ga $t_i$ kaetta to] omotteiru] riyuu$_i$
-Nom -Nom left C think reason
'the reason$_i$ Mary thinks that John left $t_i$'

(9) a. [Mary-ga $t_i$ mondai -o toita] hoohoo$_i$
-Nom problem -Acc solved method
'the method$_i$ Mary solved the problem $t_i$'
b. *[Mary-ga [John-ga $t_i$ mondai -o toita to]
-Nom -Nom problem-Acc solved C
omotteiru] hoohoo$_i$
think method
'the method$_i$ Mary thinks that John solved the problem $t_i$'

If (8b) and (9b) can be derived by movement, we expect them to be

grammatical as their English counterparts in (10a–b).

(10) a. the reason$_i$ (for which) John thinks [Mary was fired $t_i$]
b. the method$_i$ (by which) John thinks [Mary solved the problem $t_i$]

Based on examples of this kind, I argued in Murasugi (1991) that relativization of pure adjuncts is simply impossible in Japanese. Given this, (8a) and (9a) do not contain any gap and they are pure complex NPs like those in (11a–b).

(11) a. sakana-ga yakeru nioi
fish -Nom burn smell
'*Lit.* the smell that the fish burns'
b. doa -ga simaru oto
door-Nom shut sound
'*Lit.* the sound that the door shuts'

Then, (8a), for example, has a structure that parallels the English (12).

(12) the reason for John's leaving

This analysis is in line with Hoji's hypothesis. (8b) and (9b) cannot be base-generated with *pro*, since *pro* can appear only in argument positions. And they cannot be derived by movement either, because Japanese relative clauses, gapless or gapped, can never involve movement.

## 3. Japanese "Relative Clauses" as Bare Sentences

Given Hoji's hypothesis, a question arises why Japanese relative clauses cannot involve movement. One straightforward answer is that Japanese relative clauses are TPs (Tense Phrases), and not CPs (Complementizer Phrases), as originally proposed by Saito (1985). If they do not have the CP Spec position where a relative operator can move to, they cannot be derived by movement.

In Murasugi (1991, 2002a, b, 2004), I argued this is indeed the case. Some Japanese-speaking children, around the age 2 to 4, produce ungrammatical relative clauses like those in (13). The object *taiko*

(drum) in (13a), and the subject *wanwa* (dog) in (13b), are "relativized."

(13) a. buta san-ga tataiteiru no taiko (M: 2;11)
piggy -Nom is-hitting *NO drum
'the drum that the piggy is playing'

b. ohana motteru no wanwa (T: 2;6)
flower is-holding *NO doggie
'a doggie that is holding a flower'

Here, the problem is the overgenerated particle 'no' following the relative clause, which is not allowed in adult grammar. I first presented detailed arguments that this particle is of the category C (complementizer). 'No' as a C appears in cleft sentences as shown in (14).

(14) a. [[Yamada-ga atta] no]-wa Russell da
-Nom met C -Top is
'It was Russell that Yamada met'

b. [[Yamada-ga atta] no]-wa Russell ni da
-Nom met C -Top with is
'It was with Russell that Yamada met.'

Then, I argued that Japanese-speaking children initially hypothesize that Japanese relative clauses are CPs, and hence, produce 'no' at its head position.

This analysis of (13) implies that CP is the unmarked category for relative clauses. It also implies that those children eventually discover that Japanese relative clauses are TPs, but not CPs, and thus, cease to produce 'no'. And there is positive evidence that they can use to make this shift. (15) shows that an overt complementizer is not allowed in non-relative prenominal sentential modifiers in Japanese.

(15) a. sakana-ga yakeru (*no) nioi
fish -Nom burn C smell
'*Lit.* the smell that the fish burns'

b. doa -ga simaru (*no) oto
door-Nom shut C sound

'*Lit.* the sound that the door shuts'

This is in clear contrast with English. As shown in (16), English non-relative sentential modifiers require an overt complementizer.

(16) the claim [$_{CP}$ * (that) [Bill had left the party]]

Stowell (1981) and Kayne (1981) analyze (16) as follows. If the complementizer 'that' is missing, there must be an empty category in the C position. But this empty category would then violate the Empty Category Principle, or some other condition on the licensing the empty categories. Thus, the complementizer 'that' must be present in examples like (16).

If we apply this analysis to the Japanese (15), it follows that the sentential modifier cannot be of the category CP. If it is CP, its head C position would be occupied by an empty category, and the empty category would be in violation of the principle governing the distribution of empty categories. Hence, the sentential modifier in (15) must be of the category TP. This means that Japanese-speaking children can infer, on the basis of positive evidence like (15), that the sentential modifier in a pure complex NP is of the category TP. Suppose, as it seems plausible, that the children generalize this conclusion to all prenominal sentential modifiers. Then, (15) serves as positive evidence that Japanese relative clauses are of the category TP.

If this analysis of the acquisition data in (13) is correct, it provides direct support for the TP hypothesis for Japanese relative clauses. According to this analysis, the category for relative clauses is parameterized between CP and TP, CP being the unmarked case. And Japanese-speaking children eventually choose TP.

## 4. The Modification Relation of Sentential Modifiers in Japanese

As noted above, Kuno (1973) shows that Japanese relative clauses need not contain a gap. The relevant example (1) is repeated in (17).

(17) [$_{NP}$ [$_{IP}$ syuusyoku-ga muzukasii] [$_{NP}$ buturigaku]]
getting job-Nom hard physics

'Physics, which is hard to get a job in'

Here, Kuno assumes that this kind of relative is licensed by the "aboutness relation" that applies to topics as well. Thus, we have the topic sentence in (18) corresponding to (17).

(18) [$_{IP}$[$_{NP}$ buturigaku]-wa [$_{IP}$ syuusyoku-ga muzukasii]]
physics -Top getting job-Nom hard
'As for physics, it is hard to get a job.'

Given this analysis, which has been highly influential, examples such as the following cannot be relative clauses:

(19) a. [[ sakana-ga kogeru] nioi]
fish -Nom burn smell
'*Lit.* the smell that a fish burns = the smell of a fish burning'

b. [[doa -ga simaru] oto]
door-Nom shut sound
'*Lit.* the sound that a door shuts = the sound of a door shutting'

This is so because the "aboutness relation" does not hold between the head (*nioi* in (19a)) and the sentential modifier (*sakana-ga kogeru* in (19a)) in these examples. The topicalization examples corresponding to (19a–b) are ungrammatical as shown below.

(20) a. *[ sono nioi -wa [ sakana -ga kogeru]]
that smell -Top fish -Nom burn
'*Lit.* As for that smell, a fish burns.'

b. *[ sono oto -wa [ doa -ga simaru]]
that sound -Top door -Nom shut
'*Lit.* As for that sound, a door shuts.'

Examples like (19a–b) have been considered typical cases of non-relative prenominal (pure) sentential modifiers in Japanese.

It would be useful to consider in this context another type of Japanese pure sentential modifiers, which I call "result relatives." Observe (21a). Here, the "the relative" head corresponds to a result/product of the

act/event denoted by the prenominal sentential modifier. Even ratio nouns such as 'hanbun' (half) can also appear in the "head" position, as shown in (21b).[3]

(21) a. [[ kyabetu-o komakaku kitta] mono]
cabbage-Acc thinly cut thing
'*Lit.* thing that one thinly cut a cabbage'
= the thing which was produced by slicing a cabbage

b. [[ haha -ga zyagaimo-o yudeta] hanbun]
mother-Nom potatoes -Acc boiled half
'*Lit.* half that Mother boiled potatoes'
= a half of that which Mother made by boiling potatoes

If we assume Kuno's (1973) criterion above, "result-relatives" must also be classified as pure sentential modifiers. In fact, the topicalization counterparts of (21) are all ungrammatical.

(21) a. *[sono mono-wa [ kyabetu-o komakaku kitta]]
that thing -Top cabbage-Acc thinly cut
'*Lit.* As for that thing, one thinly cut a cabbage.'

b. *[sono hanbun-wa [ haha -ga zyagaimo-o
that half -Top mother -Nom potatoes -Acc
yudeta]]
boiled
'*Lit.* As for that half, Mother boiled potatoes.'

Hence, the "aboutness relation" is not observed between the head and the sentential modifier in "result-relatives." This implies that they are not "relative clauses" in Kuno's sense.

Further, the modification relation with "result-relatives" is quite similar, if not identical, to that with the standard examples of pure sentential modifiers in (19). As noted above, in a typical "result-relative," the

[3] Ishii (1991) argues that this type of Japanese relative clause should be analyzed in terms of movement to CP Spec. In what follows, I will illustrate the alternative analysis proposed in Murasugi (1997).

"head" corresponds to a result/product of the act/event denoted by the prenominal sentential modifier. Thus, (21a), for example, refers to 'the thing which was produced by slicing a cabbage.' A similar relation between the sentential modifier and the "head" holds in (21b) as well. (19a) and (19b) refer to 'the smell which is produced by a fish burning' and 'the sound which is produced by a door shutting' respectively. It seems reasonable, then, to suppose that typical "result-relatives" are interpreted in the same way as the pure sentential modifiers. Based on this and other evidence, Murasugi (1997) concludes that "result relatives" are not relative clauses but are pure sentential modifiers.

## 5. The Licensing Condition on Prenominal Sentential Modifiers

It was shown in the preceding section that Japanese employs prenominal sentential modification quite extensively. "Result relatives," for example, are not possible in English. (23) is another example that lacks an English counterpart.

(23) sono toogeika-wa [[tuti-o koneta] itibu]-o
that potter -Top soil-Acc softened-and-mixed a part-Acc
moyoo-ni tukatta
pattern-for used
'*Lit.* That potter used for the pattern [part that he softened and mixed soil].'
= The potter used for the pattern part of the soil he softened and mixed.

Then the next question that arises concerns the nature of the modification relation expressed by these sentential modifiers. I made some speculative remarks on this issue in Murasugi (1997).

The modification relation in (23) seems to be of the kind that is typically observed across sentences in discourse. Thus, (23) can be paraphrased as in (24).

(24) a. sono toogeika-wa tuti-o koneta
that potter -Top soil-Acc softened-and-mixed
'That potter softened and mixed the soil.'
b. sosite, *sono itibu* -o moyoo -ni tukatta
and *its/that a part*-Acc pattern -for used
'And he used a part of for the pattern.'

The same can be said of the example in (25). Thus, it can be rewritten as in (26).

(25) John-wa [[Bob-ga yatin-ni tagaku-no okane -o tukau]
-Top -Nom rent -for a lot -Gen money-Acc use
(sono) hanbun-o gyanburu-ni tukau
half -Acc gambling-for use
'*Lit.* John uses for gambling [(the) half that Bob uses a large amount of money for rent].'
= John uses for gambling as much as half of the large amount of money Bob uses for rent.

(26) a. Bob-wa yatin-ni tagaku-no okane -o tukau
-Top rent -for a lot -Gen money-Acc use
'Bob uses a large amount of money for rent.'
b. sosite, John-wa *sono hanbun*-o gyanburu-ni tukau
and -Top *its half* -Acc gambling-for use
'*Lit.* And John uses its half for gambling.'
= And John uses half of that amount for gambling.

This observation extends to typical examples of pure sentential modifiers. (27) contains a sentence modifying 'nioi' (smell).

(27) [[Taroo-ga kinoo [sakana-ga kogeteiru to] omotta]
-Nom yesterday fish -Nom is burning C thought
nioi] -ga ima-mo siteiru
smell-Nom now-even doing
'*Lit.* Even now, [the smell that Taroo thought yesterday that a fish was burning] is around.'

Corresponding to this, we have (28).

(28) a. Taroo-ga kinoo [sakana-ga kogeteiru to]
-Nom yesterday fish -Nom is burning C
omotta
thought
'Taroo thought yesterday that a fish was burning.'

b. sosite, *sono* nioi -ga ima -mo siteiru
and *its/that* smell-Nom now-even is doing
'And that smell is still around even now.'

The examples above indicate that the discourse relation mediated by 'sono' (its/that) can be realized in Japanese as a modification relation in Noun Phrases. More generally, this suggests that in Japanese a syntactic configuration can be licensed by a typical discourse relation. This conclusion, if correct, can provide content for the claim that Japanese, as opposed to English, is a "discourse-oriented" language.

The discussion above on pure sentential modifiers has an important implication for the analysis of relative clauses. Recall first Kuno's (1973) claim that gapless relative clauses in Japanese are licensed by the "aboutness" relation. In the preceding section, I adopted this as a criterion to distinguish relative clauses and pure sentential modifiers. But the criterion itself is arbitrary, although it is certainly intuitively appealing. That is, there is no clear reason that relative clauses and pure sentential modifiers should be distinguished in this way. In this section, I examined examples that appear to be clear cases of pure sentential modifiers and suggested that they are licensed by virtue of the discourse relation mediated by 'sono' (its/that). If what have been considered gapless relative clauses have the same property, it is only natural to analyze them not as relative clauses but as pure sentential modifiers. In the remainder of this section, I will show that this is indeed the case.

Let us consider again a typical example of a gapless relative clause.

(29) [[[[sotugyoo -ga muzukasii] buturigaku]-o senkousuru]
graduation-Nom difficult physics -Acc major

gakusei]-wa ima -mo ooi
student -Top now-even plentiful
'Even today, there are many students who major in physics, which is difficult to get a degree in.'

Here, the sentence modifying 'buturigaku' (physics) is gapless. And the discourse relation discussed above holds here as well. Thus, (30) can be paraphrased as in (31).

(30) a. buturigaku-wa sotugyoo -ga muzukasii
physics -Top graduation-Nom difficult
'As for physics, it is difficult to get a degree.'

b. sikasi, [[*sono* buturigaku-o senkoosuru]
however *its/that* physics -Acc major in
gakusei]-wa ima -mo ooi
student -Top now-even plentiful
'But even today, there are many students who major in (that) physics.'

Hence, it seems indeed plausible to classify gapless relatives as pure sentential modifiers.

One remark is in order before I conclude this section. The gapless "relative clause" in (29) has been considered a relative clause in part because it is non-restrictive. But its non-restrictive nature is consistent with the proposal that it is a kind of a pure sentential modifier. Japanese seems to allow non-restrictive pure sentential modifiers quite generally as shown in (31).

(31) [[Taroo-ga kinoo [sakana-ga yaketeiru to] omotta]
-Nom yesterday fish -Nom is burned C thought
kono nioi] -no genin-wa ima -mo wakaranai
this smell-Gen cause-Top now-even not-understood
'*Lit.* The cause of [this smell that Taroo thought yesterday that a fish was burning] is not known even now.'

Thus, as far as I know, there is no strong reason that gapless "relative clauses" should be considered relative clauses.

## 6. "Japanese Relative Clauses" as Pure Sentential Modifiers

It was argued in the preceding section that gapless "relative clauses" should be classified as pure sentential modifiers. This leaves relative clauses with gaps as the only kind of relative clause in Japanese. But are they really relative clauses? I will suggest in this section that they are not.

Let us first consider the simple example in (32).

(32) [[Taroo-ga [*gap*] kaita] hon] -wa yoku ureteiru
-Nom wrote book-Top well is selling
'The book that Taroo wrote is selling well'

This example does not allow the kind of paraphrase permitted with pure sentential modifiers. For instance, (32) cannot be restated as in (33).

(33) a. Taroo-ga [*gap*] kaita
-Nom wrote
'Taroo wrote it.'
b. *sono* hon -wa yoku ureteiru
*its/that* book-Top well is selling
'That book is selling well.'

(33b) is clearly strange as a sequel to (33a).

However, if the gap in (32) is an unpronounced pronoun, as I argued above, then there is independent reason for this. It is known that a pronoun can precede its antecedent within a sentence, but not across sentences. Thus, *he* can refer to *John* in (34a), but not in (34b).

(34) a. After he came into the room, John sat down and started reading a book
b. He came into the room. Then, John sat down and started reading a book

Then, the unpronounced pronoun in (33a) fails to refer to 'hon' (book) for the same reason that 'he' cannot refer to 'John' in (34b).

Interestingly, if we avoid this effect and substitute the indefinite noun 'hon' (book) for the gap in (33a), the paraphrase in fact becomes possible as shown in (35).

(35) a. Taroo-ga hon -o kaita
-Nom book-Acc wrote
'Taroo wrote a book.'
b. *sono* hon -wa yoku ureteiru
*its/that* book-Top well is selling
'That book is selling well.'

This suggests two things. First, the unpronounced pronouns that correspond to gaps in Japanese relative clauses may be pronominal forms of indefinite nouns. This is plausible because it is known on independent grounds that unpronounced pronouns in Japanese can stand for indefinite nouns. An unpronounced pronoun can be used in place of 'ringo' (apple) in (36).

(36) a. Taroo-ga ringo -o mittu tabeta
-Nom apple-Acc three ate
'Taroo ate three apples.'
b. Hanako-wa (ringo -o) itutu tabeta
-Top apple-Acc three ate
'Hanako ate five apples.'

Then the contrast between (33) and (35) is exactly what we expect. (32) cannot be paraphrased as in (33) because a pronoun cannot precede its antecedent across sentences. Then, it is necessary to replace the pronoun by its full form and we obtain (35).

Secondly, and more importantly, if this speculation on the gaps in Japanese relatives is correct, (35) suggests that Japanese relative clauses with gaps have the same kind of modification relation with their head nouns as pure sentential modifiers. That is, if we abstract away from the restriction on pronouns just mentioned, they allow the same kind of paraphrase as pure sentential modifiers. This, in turn, suggests that Japanese "relative clauses" with gaps should also be classified as pure sentential modifiers.

A possible objection to this is that those relative clauses allow "unbounded dependency." For example, the gap in (37) is contained in the

embedded clause within the relative clause.

(37) [Hanako-ga [Taroo-ga [*gap*] motteiru to] omotta] hon
-Nom -Nom have C thought book
'the book that Hanako thought that Taroo has'

If the clause with the subject 'Hanako' is a pure sentential modifier, then it must be licensed by virtue of its modification relation with the head noun *hon* (book), and it is not clear what role the correspondence between the gap and the head noun plays. It is this correspondence that is crucial in the interpretation of typical relative clauses.

However, it is not clear that the "unbounded dependency" observed in (37) is any different from the one in (38).

(38) [[Taroo-ga [sakana-ga kogeteiru to] omotta] nioi]
-Nom fish -Nom is burning C thought smell
'*Lit.* the smell that Taroo thought that a fish is burning'

Here too, there is an apparent "unbounded dependency." The smell is that of a fish burning and not of Taroo thinking. But would this mean that what modifies 'nioi' in this example is not a pure sentential modifier? Most likely not. A plausible interpretation of the example is that the noun is modified by the whole prenominal sentential modifier. The "smell" is after all something that aroused a certain thought in Taroo's mind. Then, it is not clear that (37) provides any challenge to the analysis of Japanese "relative clauses" as pure sentential modifiers.

I would like to note finally that the discussion here is in line with Kuno's (1973) analysis of Japanese relative clauses in terms of the "aboutness relation." This analysis is often referred to regarding gapless relatives, but his claim is that the "aboutness relation" holds between a relative clause and the head noun in Japanese, whether the relative clause contains a gap or not. Then, what is important is the modification relation between the relative clause and the head noun, rather than the correspondence between the head noun and the gap. What I suggested in this paper is that the relevant relation is broader than "aboutness," and that it covers all prenominal sentential modifiers, including pure sentential modifiers and

what have been considered relative clauses.[4]

## 7. Conclusion

I have argued in this paper that Japanese "relative clauses" are pure sentential modifiers, and consequently, that the language lacks relative clauses. What is, and what is not, a relative clause is in a sense a matter of definition. But if Japanese "relatives" are licensed in the same way as pure sentential modifiers, they should receive the same analysis. This implies that whatever that defines relative clauses as relative clauses (as opposed to pure sentential modifiers) is not important in the syntactic analysis of Japanese relative clauses.

The findings in this paper have larger implications. If the analysis presented here is correct, Noun Phrase Accessibility Hierarchy (NPAH) of Keenan and Comrie (1977), for example, is irrelevant for Japanese relatives (see also Comrie (1998a, 2002), Keenan (1985), Keenan and Comrie (1977), among others). NPAH is proposed to capture the typological differences in "relative clauses" among languages, and there has been some discussion whether it is applicable to Japanese. (See Inoue (1976), Koide (1998), Matsumoto (1988) and Comrie (1998a), among others.) If the conclusion of this paper is correct, the issue does not arise. Japanese simply lacks relative clauses, and whatever NPAH implies about the syntax or acquisition of language holds vacuously in this language.

The present paper also confirms that what is important in linguistics is the analysis rather than the "construction." In the Principles and Parameters Approach to syntax, principles and parameters are psychologically real whereas constructions are just epiphenomena. A passive construction

---

[4] Comrie (1998a) reports the discussion of Matsumoto (1988), where a similar conclusion is drawn. She considers a variety of modification relations between prenominal sentential modifiers and their head nouns, and argues that relative clauses and pure sentential modifiers are both sentences simply attached the head nouns.

in one language may be analyzed in the same way as "tough construction" or "impersonal construction" in another, and the *wh*-question construction in one language may have the same syntactic properties as cleft construction in another. Therefore, it sometimes makes little sense to compare the same construction across languages. The present paper suggests that it would be more fruitful to compare Japanese pure sentential modifiers (including relative clauses) with those of other languages, rather than comparing Japanese "relative clauses" with those in others.

## References

Comrie, Barnard (1998a) "Rethinking the Typology of Relative Clauses," *Language Design* 1, 59–86.

Comrie, Barnard (1998b) "Attributive Clauses in Asian Languages: Towards an Areal Typology," *Sprache in Raum und Zeit, In memoriam Johannes Bechert, Band 2*, ed. by W. Boeder, C. Schroeder, K. Wagner and W. Wildgen, 51–60, Gunter Narr, Tübingen.

Comrie, Barnard (2002) "Typology and Language Acquisition: The Case of Relative Clauses," *Typology and Second Language Acquisition*, ed. by A. Giacalone Ramat, 19–37, Mouton de Gruyter, Berlin.

Hoji, Hajime (1985) *Logical Form Constraints and Configurational Structures in Japanese*, Doctoral dissertation, University of Washington.

Inoue, Kazuko (1976) *Henkeibunpoo to Nihongo*, Taishukan, Tokyo.

Ishii, Yasuo (1991) *Operators and Empty Categories in Japanese,* Doctoral dissertation, University of Connecticut.

Kayne, Richard. S. (1981) "CP Extensions," *Linguistic Inquiry* 12, 93–133.

Keenan, Edward (1985) "Relative Clauses," *Language Typology and Syntactic Description, vol. II: Complex Constructions*, ed. by T. Shopen, 141–170, Cambridge University Press, Cambridge.

Keenan, Edward, and Barnard Comrie (1977) "Noun Phrase Accessibility and Universal Grammar," *Linguistic Inquiry* 8, 63–99.

Kuno, Susumu (1973) *The Structure of the Japanese Language,* MIT Press, Cambridge, MA.

Koide, Yuko (1998) "A Study of Complex NPs in Japanese and English," MA thesis, Kinjo Gakuin University.

Kuroda, Shige-Yuki (1992) *Japanese Syntax and Semantics*, Kluwer Academic

Publishers, Dordrecht.
Matsumoto, Yoshiko (1988) "Semantics and Pragmatics of Noun-modifying Constructions in Japanese," *Berkeley Linguistics Society* 14, 166–175.
Mihara, Ken-Ichi (1994) "Iwayuru shuyoobu-naizaigata-kankeisetu ni tuite (On the so-called head-interanal relative clauses [translated by the present author])," *Nihongogaku* 13, 80–92.
Murasugi, Keiko (1991) *Noun Phrases in Japanese and English*, Doctoral dissertation, University of Connecticut.
Murasugi, Keiko (1994) "Head-internal Relative Clauses as Adjunct Pure Complex NPs," *Synchronic and Diachronic Approaches to Language*, ed. by Shuji Chiba, 425–437, Kaitakusha, Tokyo.
Murasugi, Keiko (1997) "The Syntax-discourse Interface: A Case Study," ms. Nanzan University.
Murasugi, Keiko (2000a) "An Antisymmetry Analysis of Japanese Relative Clauses," *The Syntax of Relative Clauses*, ed. by Artemis Alexiadou, Paul Law, André Meinunger and Chris Wilder, 167–188, John Benjamins, Amsterdam.
Murasugi, Keiko (2000b) "Japanese Complex Noun Prases and the Antisymmetry Theory," *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, ed. by Roger Martin, David Michaels and Juan Uriagereka, 211–234, MIT Press, Cambridge, MA.
Murasugi, Keiko and Tomoko Hashimoto (2004) "Two Different Types of Overgeneration of 'No' in Japanese Noun Phrases," *Proceedings of the 4th Asian GLOW in Asia 2003: Generative Grammar in a Broader Perspective*, ed. by Hang-Jin Yoon, 327–349, Hankook Press, Seoul.
Perlmutter, David (1972) "Evidence for Shadow Pronouns in French Relativization," *The Chicago Which Hunt*, ed. by P. M. Peranteau, et al., 73–105, Chicago Linguistic Society.
Saito, Mamoru (1985) *Some Asymmetries in Japanese and Their Theoretical Consequences*, Doctoral dissertation, MIT.
Stowell, Timothy (1981) *Origins of Phrase Structure*, Doctoral dissertation, MIT.

*Faculty of British and American Studies*
*Nanzan University*
*18 Yamazato-cho, Showa-ku, Nagoya 466–8673*

*murasugi@nanzan-u.ac.jp*

# THE EMERGENCE OF SPEECH ACT PHRASE: EVIDENCE FROM A LONGITUDINAL STUDY OF TWO JAPANESE-SPEAKING INFANTS*

Mayumi Dejima, Tomomi Nakatani and Keiko Murasugi
Nanzan University

## 1. Introduction

### 1.1. Pitch contours before two-word stage

It has been reported that children at the very early stage of language acquisition distinguish their pitch contours depending on their contexts (Dore 1974, Menn, 1975, Marcos 1987, among others). Menn (1975) reports that children make proper use of intonation contours with babbling in specific communicative contexts. In her investigation, she found that children make requests and rejections with intonation contours carried by babble-sequences.

Marcos (1987) also reports that there is a consistency of intonational form-meaning association in the speech of single-word speakers. Based on her observational study with 12 infants' Initial requests, Repeated requests, Giving, Showing and Labeling at the age of 1;5, 1;6.5, 1;8 and 1;9.5, she finds that pitch contours are distinguished in accordance with the intended meaning. In her investigation, the pitch contours for labeling and requests begin to be differentiated at the age of 1;3-1;4. Rising tones are more frequent for requests and falling tones for labeling.

Nakatani (2005) also observes the differentiation of the pitch contours of the babbling and one-word utterances based on her longitudinal observation of Niko, a Japanese-speaking girl at the age of 1;2 to 2;1. She reports that the babbling and one-word utterances of Niko are associated with the rising intonation contour for requests and interrogatives and the lowering intonation contour is found with declaratives. For example, in (1a), Niko was reading a picture book with her mother, and she asked a question using babbling with rising contour. However, in (1b), Niko replied with the falling contour when she was satisfied with the answer that the mother gave. We consider that those utterances are declaratives.

---

* This paper was presented at TsingHua-CUHK-Nanzan Joint Workshop on Language Acquisition held at Nanzan University on September, 18, 2008. This work is an extension of Murasugi and Nakatani (2005), presented at GLOW in Asia (Delhi, India). We would like to thank Mamoru Saito, Thomas Lee, Kensuke Takita, Masatake Arimoto, Chisato Fuji, Koji Sugisaki, and the audience in the workshop for their questions, comments, and suggestions. The research presented here was supported in part by the Nanzan University Pache Research Grant I-A and by the JSPS Grant-in Aid to Murasugi (#20520397) for the study of acquisition of functional categories.

(1) Situation: Niko (1; 7) is reading a picture book with her mother. She looks at a page with a lot of washing hanged out on the line.

a. Niko: [a↑a↑] + (pointing at an apron)
Mother: Kore wa Aa-tyan no epuron.
this-Top Aa-tyan's apron
'This is Aa-tyan's apron.'
Niko: [a↑a↑] + (pointing at a pair of trousers)
Mother: Kore wa Aa-tyan no zubon.
this-Nom Aa-tyan's trousers
'This is Aa-tyan's trousers.'

b. Niko: [a:↓a:↓a:↓]
Mother: un,un,un.
'Yes, yes.'
Niko: [a:↓a:↓a:↓]

Figure 1 and 2 is the result of the PRAAT analysis. As shown in Figure 1, the pitch of the second utterance edge is associated with rising contour. On the other hand, as shown in Figure 2, the pitch contour of the declaratives in babbling is falling, and the pitch is lower than that of request.

**Figure 1.** F0 contour (pitch contour) of the utterance of babbling [a↑a↑] in request context uttered by Niko at 1;7.

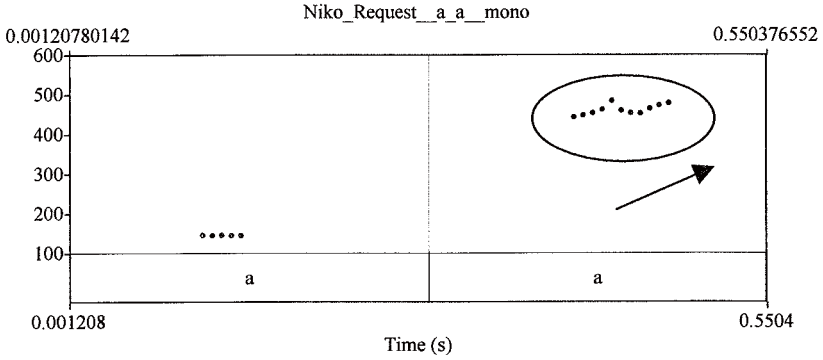
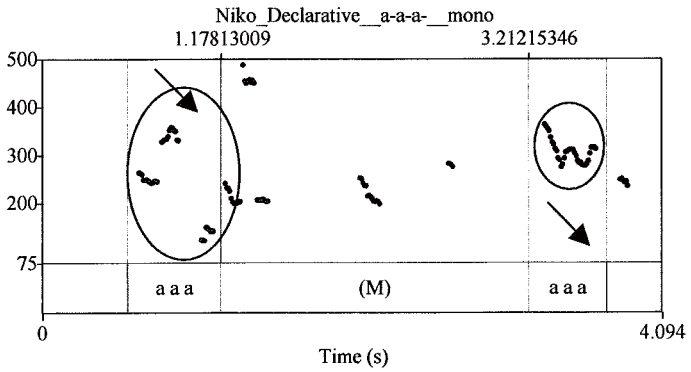



**Figure 2.** F0 contour (pitch contour) of the utterance of babbling [a:↓a:↓a:↓] in declarative context uttered by Niko at 1;7.



The pattern of intonation in one-word utterances is almost parallel with that of babbling. (2a) is an example of interrogatives and (2b) is an example of declaratives.

(2) Situation: Niko (1;10) is reading a book.

a. Niko: [nena] (=sister's name)
[a: tan] (=mother)
[nn:↑nn:↑] + (pointing to a pair of pants in a book)
Mother: Aa-tyan to onaji.
Aa-tyan with same
'It is the same as Aa-tyan's pants.'

b. Niko: [ne na↓]
[a: tan↓]

In (2a), Niko wanted to ask whether those pants were Nena's, her sister, and Aatan's, her mother, properties or not with rising contour. In contrast, in (2b), after her mother replied to her question, she uttered [nena, a:tan] again with satisfaction with falling contour. Figure 3 and 4 are their PRAAT analysis. The pitch contour of each one-word for request is rising at the end of the utterance as shown in Figure 3, while that is falling in the declaratives as shown in Figure 4.

**Figure 3.** F0 contour (pitch contour) of the utterance of one-word utterance [nena a:tan] in request context uttered by Niko at 1;10.

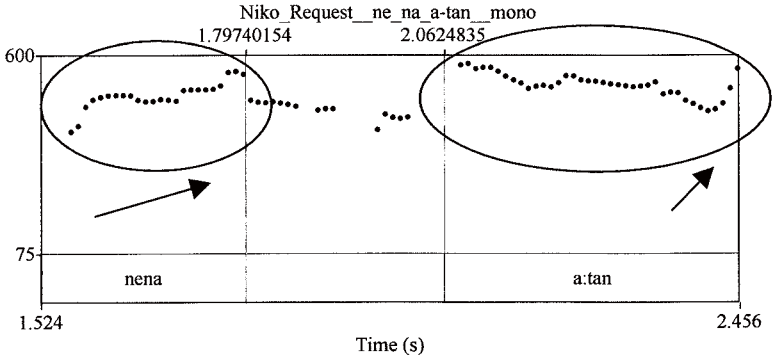
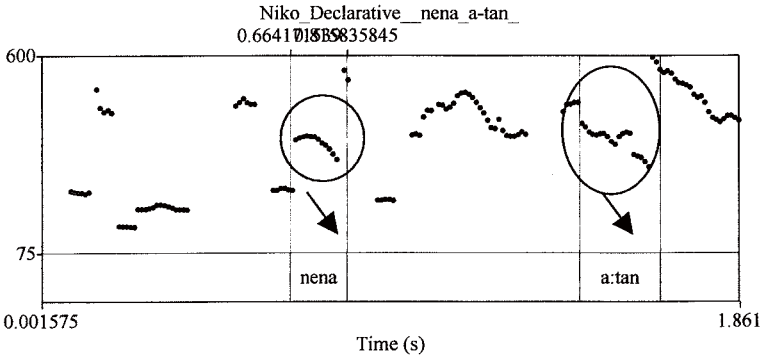



**Figure 4.** F0 contour (pitch contour) of the utterance of one-word utterance [nena a:tan] in declarative context uttered by Niko at 1;10.

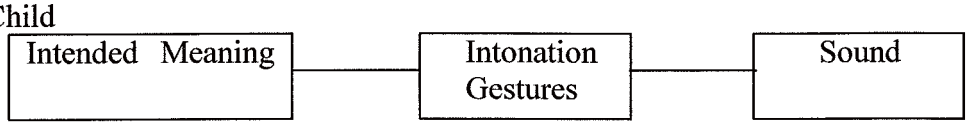


## 1.2. Continuity Hypothesis

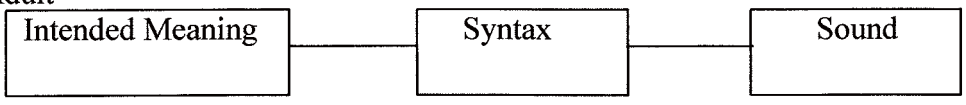
How does the infants' knowledge of speech act differentiated by the intonation and pitch succeed to their syntax? According to Snow (2006), the intonation of their target grammar starts to appear after the two-word utterances. Snow (2006) argues that "the milestone event in children's acquisition of expressive syntax is the appearance of two-word combinations at about 18 months, which coincides exactly with the dramatic growth in intonation that was observed in this and other studies. (p.294)" Contra Snow, Prieto and Varnell (2007) discusses that children's emerging intonation is largely independent of grammatical development on the basis of the observation of four Catalan-speaking children from 12 to 26 months. Despite the fact that the start of the two-word period was so different across the two groups of children, they did not find a substantial difference in the production of nuclear pitch accents and boundary tones. However, they conclude that the infants' meaningful intonation patterns depend on adult interpretation of infants' vocalization, and the interpretation is influenced on the intonation patterns of the target languages. We call this the Discontinuity Hypothesis.

On the other hand, some researchers claim that infants' intonation patterns reflect the grammatical knowledge that they obtain innately. On the line of their theory, controlled intonation is the indication of the finite grammar and it remains in their speech. That is, there is continuity between child languages and adult languages. We call this the Continuity Hypothesis. For example, Murasugi and Nakatani (2005) argue that the representation of the intended meaning starts before the onset of the single-word utterances, even though the adult lexicon is invisible and the utterances are not verbally syntactically structured. The combination of vocalization with intonation and gestures convey the propositions in babbling and single-word period by controlling intonation and gestures. They propose that the intonation and gestures carry the function that functional categories eventually take care of in the adult grammar and then, the intended meaning is associated with sound. Murasugi and Nakatani's analysis can be schematized as in (3). Children realize their syntax and lexicon by using intonation and gestures to connect intended meaning and sound, and link the discourse and the utterance. Demuth and McCullough (2008) examine the emergence of articles in five English-speaking one- to two-year-olds. They propose that the variability in children's early article use depends on phonological constraints rather than syntactic or semantic limitations. This suggests that there is a stage where children cannot represent the syntactic morphemes just like adults', despite the fact that they have the knowledge of it. From this perspective, we could predict that the meaningful intonations could be involved in the grammatical operations, even though they are invisible at the babbling and one-word stage, supporting the Continuity Hypothesis.

(3) a. Child




b. Adult



### 1.3. Adult language

Then, what makes the sentence decide on its sentence type in adult language? Many researchers have said that it gets involved in the CP layers. Rizzi (1997) proposes "CP layers hypothesis" under which CP is a set of some independent projections such as Force, Topic, Focus, and Finite projections, and these projections are in layers. Force works together with Finiteness and specifies types of each sentence such as declarative, question, exclamative, for example. According to Rizzi (1997), CP works as the interface both with discourse and proposition. CP connects the upper structure, discourse, with the lower structure, proposition. Among those projections in the CP layers, the top-most layer projection, Force, is in charge of the interface with discourse, and this is the part relevant in the analysis we follow.

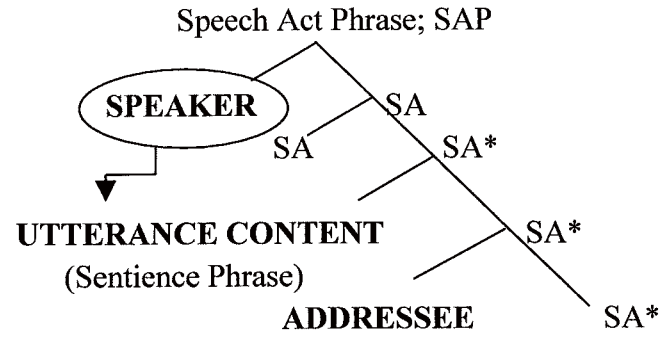
#### 1.3.1. Speech Act Phrase

Basically assuming Rizzi's idea, Speas and Tenny (2003) discuss more closely the interaction between syntax and discourse. They propose that there is a phrase on the top of the syntactic structure called Speech Act Phrase. It corresponds to Force phrase in Rizzi's sense, and has a function to fix the notion of the point of view of the sentence, anchoring the proposition of the sentence in the interface with discourse.

Speech Act Phrase has three kinds of discourse-related roles: Speaker role, Addressee role, and Utterance Content role. These roles are universally available in human grammars like thematic roles, and responsible for the relation between syntax and discourse.

Speech Act Phrase has a structure which is similar to the vP-shell structure in the sense of Larson (1988), and the three relevant roles are realized as described in (4) below. To be more precise, Utterance Content role is a role assigned to the phrase called Sentience Phrase which occurs below Speech Act Phrase. Sentience Phrase is a projection which is associated both with the proposition of the sentence and Speech Act Phrase. And, the role which controls the Utterance Content role will be responsible for the anchor of the point of view of the sentence.

(4) Declaratives




Speas and Tenny claim that (4) indicates the structure of declaratives. In (4), the Speaker role c-commands the Utterance Content role. In the Speech act phrase, the Speaker role controls

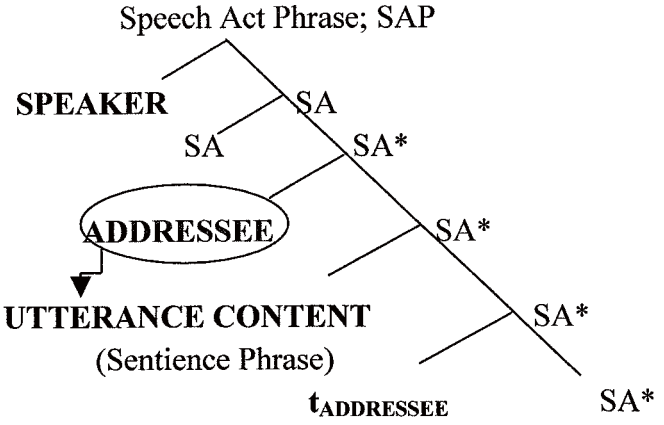
the Utterance Content role, and this indicates that the speaker is the anchor of the point of view in this sentence.

### 1.3.2. Interrogative Flip

Then, what happens when the speaker is not the anchor of the point of view, but the addressee is the anchor instead? For example, questions (interrogatives) are different from declaratives in that the anchor of their point of view is the addressee, not the speaker. Speas and Tenny (2003) propose that the switching the anchor is induced by a syntactic operation. In the recent work, Tenny (2006) named this operation "Interrogative Flip." They propose that "switching a declarative sentence to an interrogative sentence involves a simple flip of the Utterance Content role with respect to the discourse participants (speaker and addressee)." According to them, Interrogative flip is a completely syntactic operation, parallel to the one given for dative shift by Larson (1988): The Addressee role moves up from the complement position to the specifier position of the lower head, and the former specifier (the Utterance Content role) is demoted to an adjoined position.

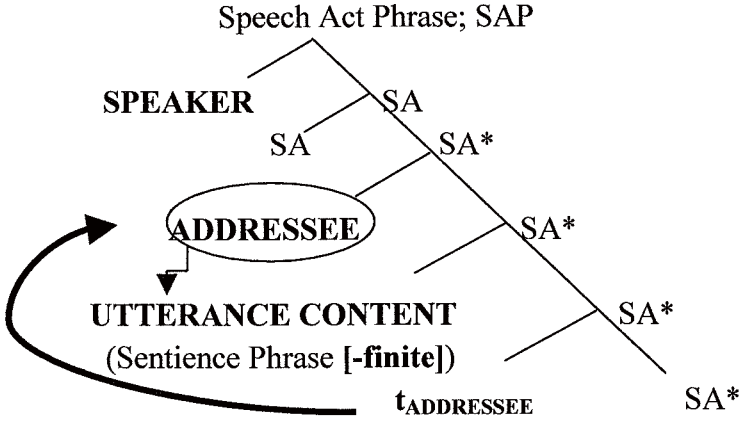
Now, how are interrogatives explained under this analysis? In the structure in (5), the Addressee role moves to the spec position above the Utterance Content role. The Addressee is now the closest c-commander of the Utterance Content, and thus controls it. Therefore, the Addressee becomes the anchor of the point of view in interrogatives.

(5) Interrogatives




In request and imperative sentences, the anchor of the point of view is the addressee just like the interrogatives. In this case too, the Addressee role undergoes the Interrogative Flip, as indicated in (6). Interrogatives on one hand and requests and imperatives on the other differ in that requests and imperatives are associated with nonfinite Sentience Phrase, indicated as [-finite] in (6), while interrogatives are associated with a finite argument.

(6) Imperatives

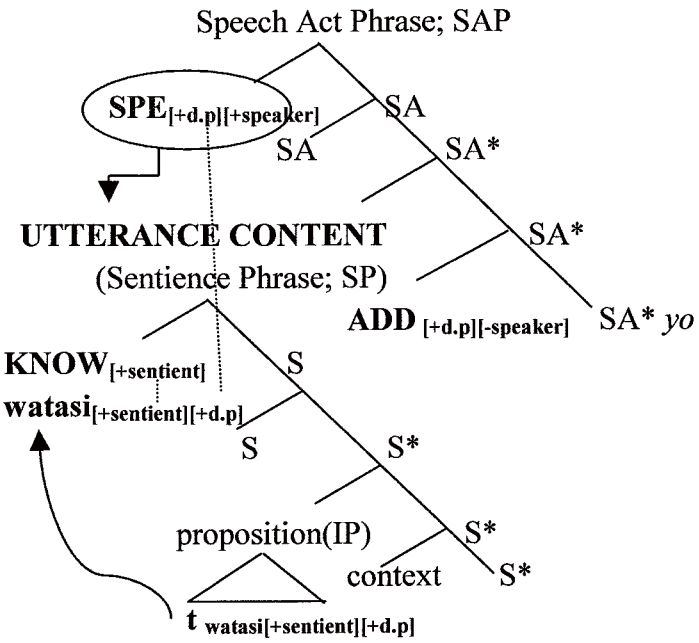



### 1.3.3. Speech Act Phrase in Japanese

Tenny (2006) develops this framework and compares declaratives and interrogatives in Japanese. Japanese declaratives have particles *yo* while interrogatives have *ka,* and they appear sentence-finally at the right periphery. These particles indicate whether the sentence is declarative or interrogative. Given the fact, Tenny (2006) conjectures that these particles are the overt realizations of Speech Act head.

A declarative sentence such as *watasi wa samui yo* ( I feel cold) has a structure as illustrated in (7).

(7) Japanese declarative sentence [*watasi wa samui yo* ( I feel cold)]

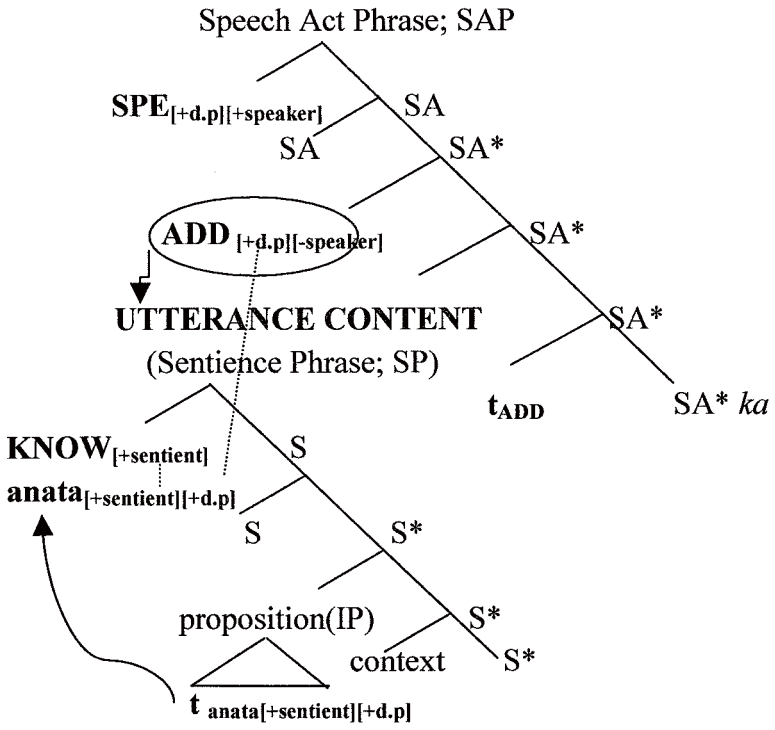



In a broad way, *watasi* (I) in the propositional phrase (IP), with [+sentient] and [+discourse

participant] features, moves to the specifier position of the Sentience Phrase and is associated with [+sentient] of Seat of Knowledge role, which occurs within Utterance Content role. At the same time, [+discourse participant] feature of *watasi* is associated with that feature of the Speaker role. *Watasi* finally is also associated with [+speaker] in the Speaker role. Then, the sentence is licensed as declarative.

Tenny (2006) also shows the framework of Japanese interrogative sentences, *anata wa samui ka*, (Do you feel cold?) as shown in (8). In (8), *anata* (you) moves to the specifier position of the Sentience Phrase, and is associated with the [+sentient] of Utterance content role there. Notice that the Speech Act Phrase performs the Interrogative Flip in this case. Hence, the closest c-commander of the Utterance content role is the Addressee role, not the Speaker role. Thus, *anata* is associated with [+discourse participant] and [-speaker] of the addressee role in this case, and the sentence is licensed as interrogative.

(8) Japanese interrogative sentence [*anata wa samui ka*, (Do you feel cold?)]




## 1.4. Goal of the study

In this paper, we first examine how infants control pitch contours in babbling and one-word stage based on the longitudinal studies with two Japanese-speaking children from 0 to 2. In section 3, we report the results of our observation. Infants can control the pitch contours for requests, interrogatives, declaratives and exclamatives at the babbling and one-word stage, replicating the results of the previous studies. Based on the results, in section 4, we first summarize our descriptive findings, then we argue that the infant's differentiation of their intonation contours is best analyzed as involving manipulation of Speech Act Phrase,

supporting the Continuity Hypothesis. We discuss how the child intonation system is involved in syntactic development using the framework of syntax-discourse interface proposed by Speas and Tenny (2003). We propose that infants at the pre-verbal stage already have Speech Act Phrase and their intonation is part of the representation of it. Then, we argue whether children share the same intonation system as adults' or not, and suggest the continuity in intonation system from the beginning of the language acquisition. Section 5 concludes the study.

## 2. Method

### 2.1. Subjects

This study is based on the longitudinal observation of two Japanese-speaking boys. We observed Keitaro, from 0;2 through 1;8 and Yuta from 0;1 through 1;5. Their parents use Japanese exclusively in the daily life.

### 2.2. Procedures

We constantly videotaped Keitaro for 60 minutes a week, and Yuta for 30 minutes a week. They were videotaped with digital video cameras (Victor GR-D250 for Keitaro and Sharp VL-NZ10 for Yuta.) Their data was basically recorded under natural contexts at home with their mothers, or researchers, and/or other caretakers.

### 2.3. Coding

The collected data was reviewed by the researchers, and divided into 4 groups, request, interrogatives, declaratives and exclamatives, on the basis of acoustic properties and contexts. We excluded the utterances which are close to crying, and we also excluded repetitions of the adults' utterances.

Phonetic properties of each utterance are analyzed by PRAAT, especially focusing on the pitch contours. PRAAT is software with which we can analyze, synthesize, manipulate speech, and create high-quality pictures for the articles and the thesis. We analyzed all the sound data we collected by this software in this study.

## 3. Results

### 3.1. Requests

Requests often appeared in our data. The examples (9) and (10) are some of them. In the context described in (9), Keitaro was playing with his mother. Keitaro was holding a puppet in his hand. He wanted the observer to manipulate the puppet for him. In this study, we regard this situation as a typical case of request. In this context, Keitaro produced babbling such like [e,e,e…] as described in (9). When Keitaro asked his mother to operate the puppet, he

repeated short and high pitched babbling like [e,e,e•••.]. "↑" indicates that the pitch contour is rising.

(9) Situation: Keitaro (1;5.20) is playing with his mother in the room.
Keitaro: (Giving a puppet to mother)
[e↑, e↑, e↑, o↑, o↑, o↑, o↑]
[o↑, o↑, o↑, o↑, o↑, o↑, o↑]
Intended meaning: 'Manipulate the puppet for me.'

The pitch of each utterance-final-edge is consistently associated with rising contour. The intended meaning of his babbling in (9) could be kind of "Manipulate the puppet for me," or just "Do it."

**Figure 5.** F0 contour (pitch contour) of the utterance of babbling [e↑, e↑, e↑, o↑, o↑, o↑, o↑] [o↑, o↑, o↑, o↑, o↑, o↑, o↑] in request context uttered by Keitaro at 1;5.20.

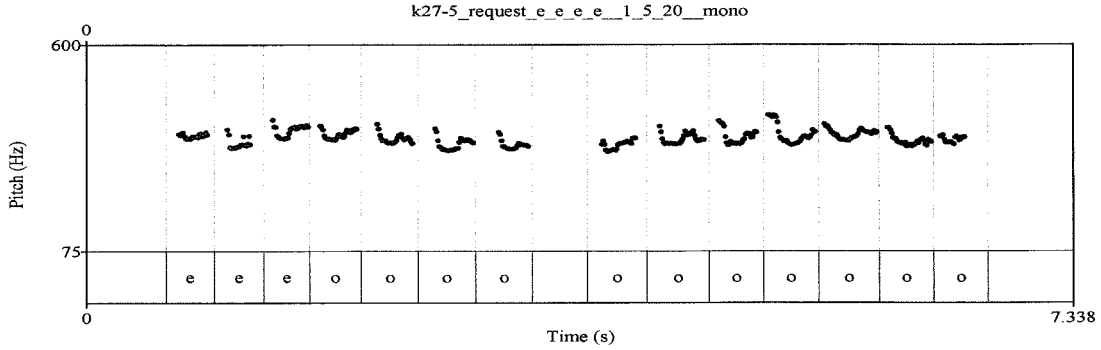
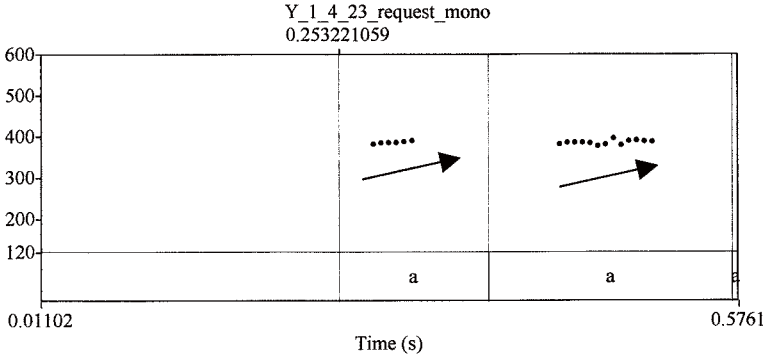



Figure 5 shows the results of the PRAAT analysis. It shows that each utterance has almost the same shape, and Keitaro is producing almost the same kind of [e] or [o] repeatedly, raising pitch at the utterance-edge-position.

The example (10) is another example of request produced by Yuta at the age of 1;4. Yuta was playing with his grandmother in the bathroom and tried to insert and take off a stopper of a sink. However, he could not reach the stopper, so, he made a request with babbles. The intended meaning of the utterance is 'I want to insert a stopper.' He made the request with repeated babbles with rising contour. Figure 6 is the PRAAT analysis of (10).

(10) Situation: Yuta (1;4.23) is trying to insert a stopper.
Yuta: [a↑a↑a↑a↑ a↑a↑a↑a↑]+ (reaching out his hand for a stopper.)
Intended meaning: 'I want to insert a stopper by myself.'
Mother: Hame tai no?
insert want copula
'Do you want to insert a stopper?'
Yuta: [a↑]
Intended meaning: 'Yes, I want!'

**Figure 6.** F0 contour (pitch contour) of the utterance of babbling [a↑a↑a↑a↑a↑a↑a↑a↑] in request context uttered by Yuta at 1;4.23.




The percentage of two infants' utterances with rising and non-rising pitch contours in the request context observed in a 60-minute session, which is randomly picked up from whole data, is presented in Table1.

**Table 1.** Percentage (number) of rising/ falling pitch contours in the request context

| | Rising | Not Rising | Total |
|---|---|---|---|
| Keitaro | 100%(8) | 0%(0) | 100%(8) |
| Yuta | 93%(53) | 7%(4) | 100%(57) |

### 3.2. Interrogatives

We collected the data of Interrogative context from Keitaro and Yuta. One of the examples is described in (11). In (11), Keitaro was playing with his mother. He was looking at flowers in the vase. Then he began to play with them. His mother told him not to do so. Then, apparently, he asked back what she said. We conjecture that this would be a typical case of interrogatives by the infants.

(11) Situation: Keitaro (1;4.6) is on the table, touching flowers in the vase.
Mother: Ohana wa daizi da yo.
Flowers Top precious
'You must cherish the flowers.'
Keitaro: [e↑] [e↑] (Then, Keitaro looks at mother.)
Intended meaning: 'What did you say?'
Mother: N, daizi damon.
'What? I said you must cherish them.'
Keitaro: (Looking at mother) [e↑]
Intended meaning: 'What did you say?'

When Keitaro asked the question to his mother, he produced short and high pitched babbling, and its end was rising. The intended meaning could be kind of "What did you say now?" Whenever he babbled in this question context, he produced the same pattern of utterance whose final-edge was raised.

**Figure 7.** F0 contour (pitch contour) of the utterance of babbling [e↑] in interrogative context uttered by Keitaro at 1;4.6. (Circled)

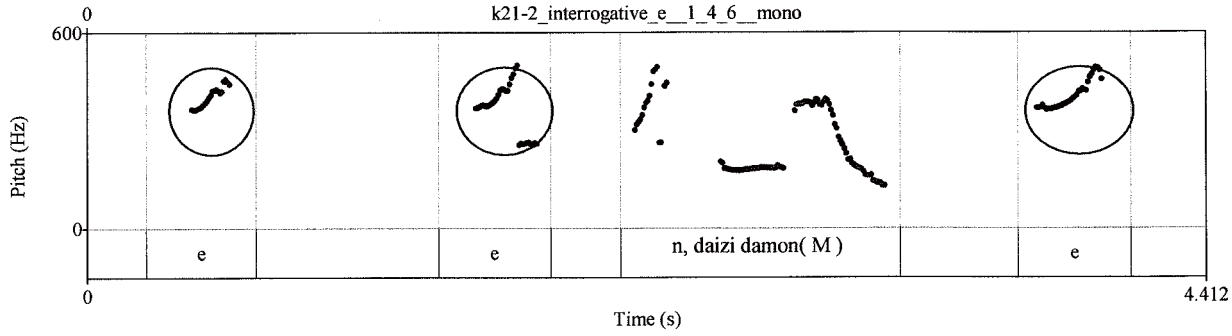
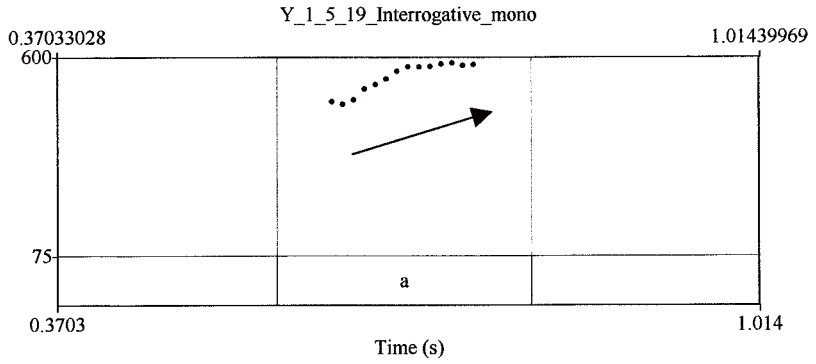



Figure 7 shows that the babbling utterance in the interrogative context is short and has rising pitch contour at the end.

The next example is also considered to be interrogative. In (12), Yuta was opening a present with his grandmother, wondering what was in it. When he looked into the bag, he uttered [a:], whose intended meaning would be 'What's in it?' Then, after he found the things in the bag, he uttered [atta ta], which probably meant he found something in it. [atta ta] or [atta] is one of the one-words which he produced frequently at that time. Figure 8 is the PRAAT analysis of (12). It shows the rising pitch contour.

(12) Situation: Yuta (1;5.19) opens a bag of present.
Yuta: [a:↑] + (looking into the bag)
'What's in it?'
[atta ta]
Intended meaning: 'I found something in it.'

**Figure 8.** F0 contour (pitch contour) of the utterance of babbling [a↑] in interrogative context uttered by Yuta at 1;5.19.




The percentage of two infants' utterances with rising and non-rising pitch contours in the interrogative context observed in a 60-minute session, which is randomly picked up from whole data, is presented in Table 2.

**Table 2.** Percentage (number) of rising/ falling pitch contours in the interrogative context

| | Rising | Not Rising | Total |
|---|---|---|---|
| Keitaro | 100%(28) | 0%(0) | 100%(8) |
| Yuta | 100%(2) | 0%(0) | 100%(2) |

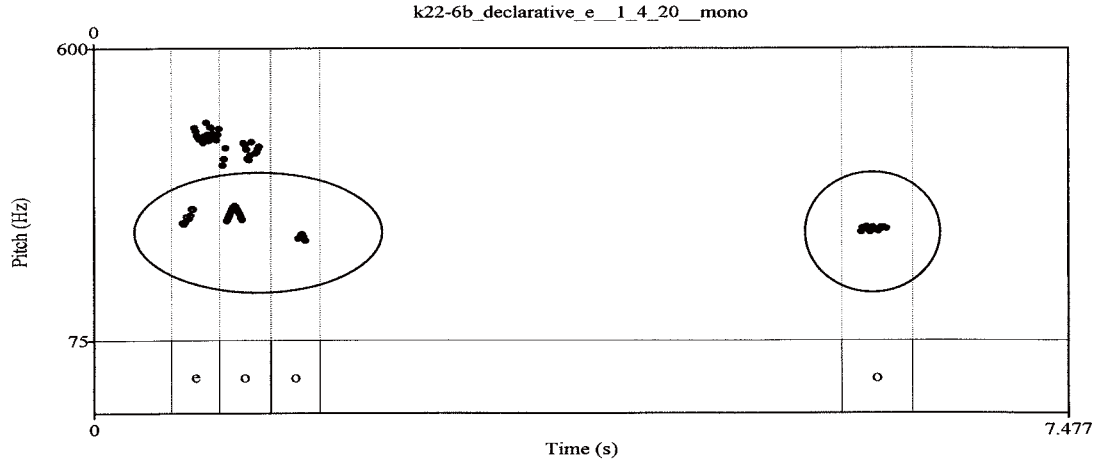
### 3.3. Declaratives

We also collected the utterances which were considered to be declaratives. In (13) Keitaro was watching his favorite movie. Suddenly the video stopped (the observer stopped the video on purpose), and the picture he saw disappeared. Keitaro described what has just happened in front of him by babbling [a]. The intended meaning could be kind of 'Something unusual has happened.' or 'It stopped.'

(13) Situation: Keitaro (1;4.20) is watching movie. Suddenly the video stops and the picture disappears.
Keitaro: (Pointing at a part of the picture) [e, o, o↓][o]
Intended meaning: 'Something strange has happened.'

In this example, there is *no* rising pitch contour at the end of each utterance. This is the major difference from the utterances in the request and interrogative context. Figure 9 is the PRAAT result of Keitaro's utterance in (13). There is no rising pitch contour at the end of utterances.

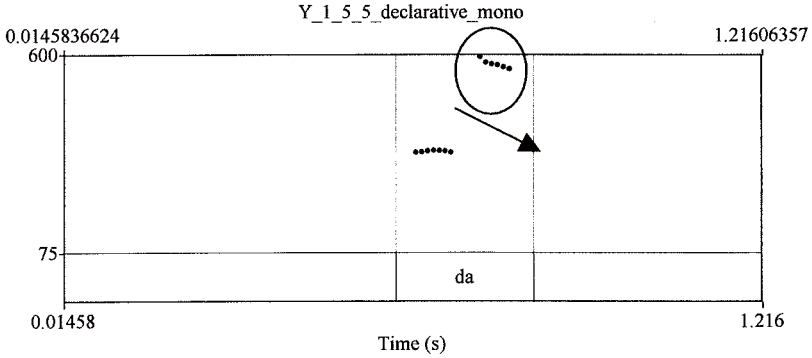
**Figure 9.** F0 contour (pitch contour)of the utterance of babbling [e,o,o↓][o] in declarative context uttered by Keitaro at 1;4.6. (Circled)




The example (14) is another example of declaratives produced by Yuta. In (14), Yuta was reading a picture book by himself. Every time he turned a page, he made babbling. We judge these utterances to be declaratives because that the book was one of his favorite and he had read the book over and over. We consider that he was describing the content of the story in the page such as "Here is a frog."Yuta pointed to a frog on the page, and produced [da:] with falling contour as Figure 10 illustrates.

(14) Situation: Yuta (1;4.6) is reading a picture book by himself.
Yuta: [da↓] + (pointing to a frog on the page)
Intended meaning: 'Here is a frog.'

**Figure 10.** F0 contour (pitch contour)of the utterance of babbling [da] in declarative context uttered by Yuta at 1;4.6. (Circled)




The percentage of two infants' utterances with rising and non-rising pitch contours in the declarative context observed in a 60-minute session, which is randomly picked up from whole data, is presented in Table 3.

**Table 3.** Percentage (number) of rising / falling pitch contours in the declarative context

| | Rising | Falling/Not Rising | Total |
|---|---|---|---|
| Keitaro | 0%(0) | 100%(28) | 100%(28) |
| Yuta | 3%(5) | 97%(164) | 100%(169) |

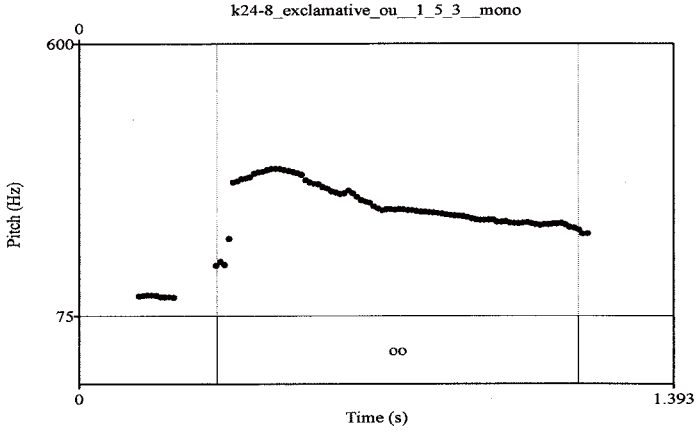
### 3.4. Exclamatives

Lastly, we show the examples of exclamatives. When people describe something in surprise, they employ exclamatives. In (15), Keitaro was playing with his aunt. They were playing with an umbrella. First, Keitaro made a request to his aunt to open the umbrella by raising intonation, and then, his aunt opened the umbrella. What we focus here is the moment when the umbrella was opened. She opened the umbrella and showed it to him, and he was very surprised at the sudden motion of the umbrella. At the moment when the umbrella was opened, he said [oo] in admiration. We refer to the utterance made in this kind of situation as exclamatives.

(15) Situation: Keitaro (1;5.3) plays with his aunt with an umbrella. Keitaro's aunt opens the umbrella and shows it to him, and he is surprised at the motion of the umbrella.
Keitaro: (Looking at the umbrella) [oo↓]
Intended meaning: 'It's open!'

As shown in Figure 11, there is no rising pitch contour at the end of Keitaro's utterance in (15).

**Figure 11.** F0 contour (pitch contour) of the utterance of babbling [oo↓] in exclamative context uttered by Keitaro at 1;5.3.




Utterances in (16) are the other examples of exclamatives in babbling and declaratives in one-word, respectively. In (16), Yuta was reading a picture book with his father. When he looked at a picture of a ladder truck, he produced [oa:] with falling contour with excitement. Then he looked at the same truck on the page and produced [bapu], which meant 'bus' with falling contour, although father told Yuta the name of the truck, a ladder truck. [bapu] is an overgenerated noun referring to the big square cars in general, and one of the earliest one-word utterance that Yuta acquired.

(16) Situation: Yuta (1;5.15) is reading a picture book with his father.
Yuta: [oa:↓] + (look at a picture of a ladder truck)
Intended meaning: 'What a cool truck!' [exclamative]
Father: o:, hashigosha.
oh, ladder truck
'Oh, it's a ladder truck.'
Yuta: [bapu↓] + (look at a picture of a fire engine)
bus
Intended meaning: 'It's a bus.' [declarative]

**Figure 12.** F0 contour (pitch contour) of the utterance of babbling [oa↓] in exclamative context uttered and the utterance of [bapu↓] by Yuta at 1;5.15.

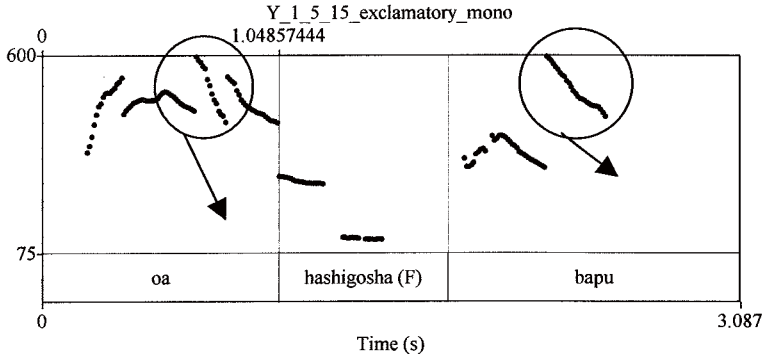



Figure 12 is the PRAAT analysis of (16). The pitch contours of both utterances, exclamative

in babbling and declarative in one-word, are falling. Nakatani (2005) reports that babbling and one-word utterances shared the same intonation patterns. Our results are consistent with her report. In addition, the duration of the babble of exclamative is longer than that of request and interrogatives.

The percentage of two infants' utterances with rising and non-rising pitch contours in the exclamative context observed in a 60-minute session, which is randomly picked up from whole data, is presented in Table 4.

**Table 4.** Percentage (number) of rising / falling pitch contours in the exclamative context

| | Rising | Falling | Total |
|---|---|---|---|
| Keitaro | 25%(1) | 75%(3) | 100%(4) |
| Yuta | 0%(0) | 100%(10) | 100%(10) |

### 3.5. Summary

In Table 5, we summarized the phonetic patterns of utterances produced by Keitaro and Yuta depending on the context. Surprisingly, both infants shared exactly the same phonetic properties in each context, and each sentence type is characterized by distinctive phonetic patterns. In the context of request, the pitch contours are both rising at the end of utterances. In addition, the utterances were made in repetition with intensity, and the duration is relatively short. In interrogatives, the pitch contours are also rising, but the utterances are not repeated. Then, in declaratives, the pitch contours are falling, and the duration is relatively short. Finally, in exclamatives, the pitch contours are falling, but the duration of them is relatively long. In addition, the utterances of exclamatives are rather intensified compared to the declaratives.

**Table 5.** Summary of phonetic properties of each context

| | | *Pitch contours* | *Duration* | *Intensity* | *Repetition* |
|---|---|---|---|---|---|
| *Requests* | Keitaro | Rising | Short | Intensified | Repetition |
| | Yuta | Rising | Short | Intensified | Repetition |
| *Interrogatives* | Keitaro | Rising | - | - | No |
| | Yuta | Rising | - | - | repetition |
| *Declaratives* | Keitaro | Falling | - | - | (Repetition) |
| | Yuta | Falling | - | - | (Repetition) |
| *Exclamatives* | Keitaro | Falling | Long | Intensified | No |
| | Yuta | Falling | Long | Intensified | repetition |

## 4. Discussion

### 4.1. Descriptive findings in the study

The present longitudinal study indicates that Keitaro and Yuta can skillfully control the four distinctive patterns of babbling, depending on the contexts. The most crucial

phonetic property is the presence (and absence) of rising pitch contours. The subjects in the present study crucially control the pitch contour at very early stage of acquisition.

Our findings clearly support the claim by Nakatani (2005), Murasugi and Nakatani (2005), Murasugi and Nakatani-Murai (2007), and Nakatani-Murai (2008). Besides, we found another interesting fact. Keitaro and Yuta control the intonation patterns in the exclamative context as well. Utterances produced by the subjects in the contexts of request and interrogative are quite similar in that they both have the rising pitch contours at the end of the utterances. Unlike interrogatives and requests, declaratives and exclamatives do not involve the rising pitch contours at the end of utterances. These phonetic findings are confirmed more accurately by the use of PRAAT analysis in the present study.

The results we obtained from the subjects are exactly the same despite the fact that they were brought up in the different environment. The present results therefore reveal that there is uniformity in the properties of pitch contours produced by the Japanese-speaking infants before two-word stage.

### 4.2. Speech Act Phrase in Child grammar

Now, we discuss why infants control pitch contours, and distinguish requests and interrogatives from declaratives and exclamatives.

The present data of pitch-controlled babbling possibly indicate that some part of syntactic faculty. We suggest that children in fact do make distinction even before two-word stage, and argue that Speas and Tenny's (2003) and Tenny's (2006) theory of Speech Act Phrase would provide a natural explanation for the infants' distinctive use of pitch contours.

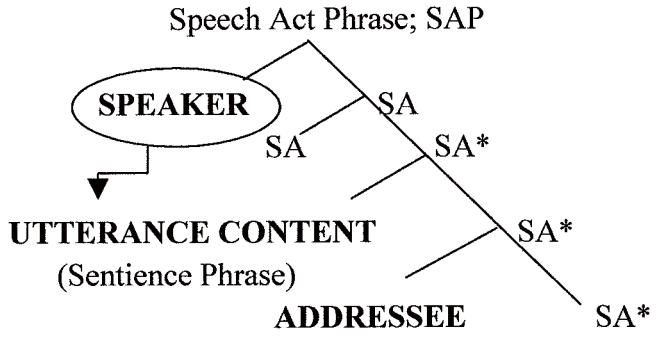
First of all, we clarify what infants know at the stage in question, as is summarized in (17). First, our descriptive findings show that infants seem to distinguish the presence or absence of the addressee. This fact suggests that they seem to know that the notion of addresser and addressee is necessary to identify a sentence already.

(17) What infants know at the stage in question:
   a. Point of View: Infants can distinguish the presence or absence of the addressee.
   b. Pitch Contour: When the infants ask or request for something, or when they expects responses from someone else, they produce babbling with the rising pitch contours.
   c. "Proposition": Ask something (Food, or their curious things) or Describe something (interesting) (but they do not talk about past or future, nor unrealistic events.)
   d. "Syntax": No verbal "combination"

Under the theory of Speech Act Phrase, we analyze that when children produce utterances without rising pitch contours, the Addressee role in the Speech Act Phrase does not undergo Interrogative Flip. The infants' utterances therefore have a structure like (18). In (18),

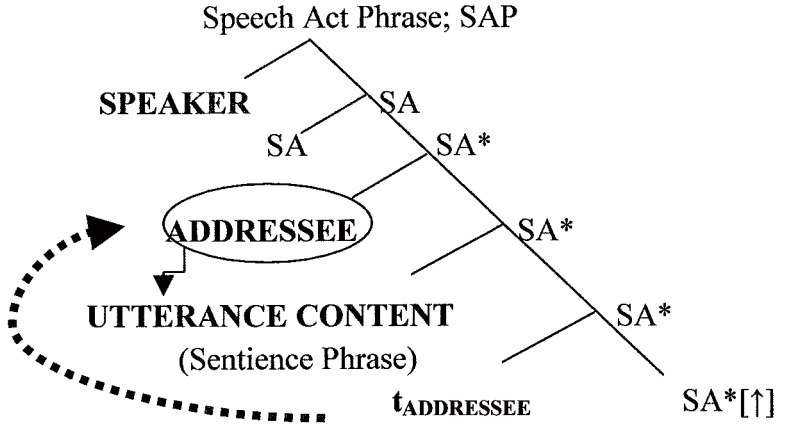
the Speaker role, c-commands the Utterance content role. The structure indicates that the speaker is the anchor of the point of view, and the sentence is interpreted as declarative. In other words, Speech Act head that do not perform Interrogative Flip do not trigger rising pitch contours by hypothesis, so that the declarative utterances are produced without rising pitch contours.

(18) Child Declaratives: [a] (No Interrogative Flip →No rising intonation)




In child interrogatives, on the other hand, we analyze that Speech Act head that performs Interrogative Flip does trigger rising pitch contours by hypothesis, so that the declarative utterances are produced without rising pitch contours in this case. The structure of interrogatives that children have would be, just like adult grammar, something like (19) according to Speas and Tenny's framework. In (19), the Addressee role moves to the specifier position above the Utterance Content (proposition) role. The Addressee is now the closest c-commander of the Utterance Content (proposition) role. Then, the Addressee controls the Utterance Content, and become the anchor of the point of view.

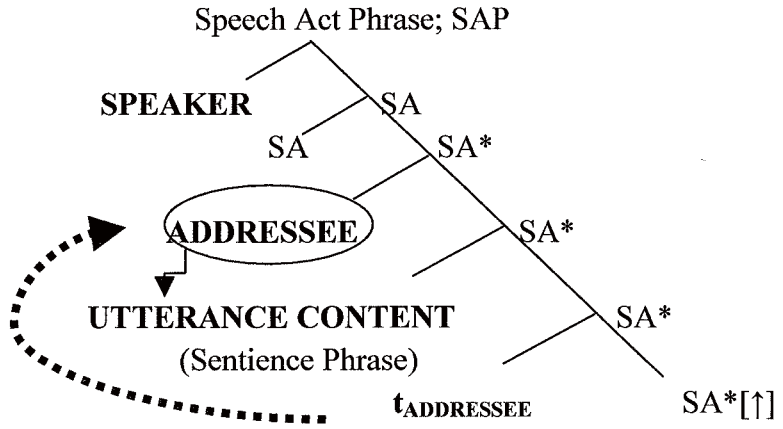
(19) Child interrogatives: [e↑](Interrogative Flip →Rising intonation)




Crucially, recall here that Speas and Tenny analyze both interrogatives and requests in the same way with respect to the Interrogative Flip. Under their analysis, children's pitch contours can be interpreted as those directly reflecting the natural class of interrogatives and requests. Children raise the pitch contour at the utterance edge for both types of utterances. Hence, in the case of child's requests, just like the interrogatives, the Addressee role moves to the spec position above the Utterance content role by Interrogative Flip. The Addressee is

now the closest c-commander of the Utterance content argument as shown in (20). In requests, like interrogatives, the Addressee controls the Utterance content role, and become the anchor of the point of view.

(20) Child Imperatives: [e↑, e↑, e↑, e↑] (Interrogative Flip →Rising intonation)




To summarize, the distinctive pitch contours found between requests/interrogatives and declaratives reflect the very early stage of child syntactic structure. At this stage, the topmost edge of CP layers, namely Speech Act Phrase, is at least realized as we can see from phonological properties such as pitch contours (and possibly gesture or eye gazing) employed by infants.

### 4.3. Pitch contours in infants' babbling under Continuity Hypothesis

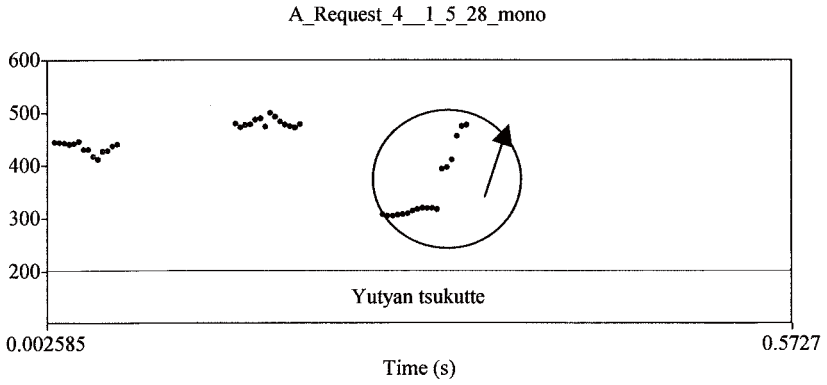
In this section, we consider the adult pitch contours for each context. In the interrogative sentence, the adults raise pitch contours at the sentence edge position, while they do or sometimes do not raise pitch contours at the end of the request sentences. Infants, on the other hand, raise pitch contours at the end of both request and interrogative utterances. We therefore also need to explain why infants, before "sentences" show up in their production, exclusively raise the pitch contour for requests, unlike adult.

It is generally considered that the feature in the head of CP layers is responsible for the adult pitch contour for interrogatives, request and declaratives. Several projections in the derivation are involved in the system, and the syntactic operation, such as Subject-Aux Inversion or Fronted versus in situ wh-questions, are also associated with the pitch contour. The pitch contours at the end of sentences are determined as a result of those proper licensing processes of 'whole syntax' including Speech Act Phrase.

Though one might say that this fact indicates that infants have different licensing system from adults at the beginning of acquisition, we do not consider this is the case. We make a detailed PRAAT analysis of adults' requests, and show that the request in full sentences equips the falling pitch contour, while the casual request, which is not syntactically completed, is actually associated with the rising pitch contour as in (21) and Figure 13.

(21) Situation: Yuta's grandmother asks Yuta to lay blocks.
Grandmother: Yuutyan, tukuttemite.
lay-them-up
'Yuutyan, lay them up.'

**Figure 13.** F0 contour (pitch contour) of the utterance 'yuutyan, tukuttemite' in request context uttered by Yuta's grandmother. (Circled)




We consider that this result indicates that what apparently looks like the child-specific intonation pattern is not in fact deviant from adults', but is, in fact, in accordance with the intonation pattern associated with the truncated phrases in the adult grammar. We therefore suggest that once the whole phrases of the sentence are "verbalized," then, the children will begin to employ the 'adult-like' lowering pitch contours in request sentences. Our findings indicate that the infants share the same intonation patterns with adults from the very beginning of acquisition, thereby supporting the Continuity Hypothesis.

## 5. Conclusion

In this paper, we examined how infants at the babbling and one-word stage controlled their pitch contours in accordance with the context based on the longitudinal observation with two Japanese speaking infants. We reported that the pitch contours in requests and interrogatives rises, but in declaratives and exclamatives falls. On the basis of these descriptive findings, we analyzed that the infants, whose utterances are not verbally syntactically realized, already have Speech Act Phrase and they can discriminate the sentence type. We proposed that children do have at least the CP layers (more specifically, Speech Act Phrase), the edge of the syntactic structure, from the beginning of acquisition, and they verbalize it by employing phonological properties such as pitch contours, (and possibly gestures or eye gazing) in the very early stage of acquisition. In addition, based on a detailed PRAAT analysis, we also reported that children and adults share the same intonation patterns from the very early stage of language acquisition. Taken together, the findings suggest that there is continuity between pre-verbal and verbal stage.

## References


Demuth, K. and E. McCullough. (2008) "The prosodic (re)organization of children's early English articles," *Journal of Child Language, 1*-28, doi:10.1017/S0305000908008921.

Dore, J. (1974) "A pragmatic description of early language development," *Journal of Psycholinguistic Research* 4. 343-50.

Larson, R. (1988) "On the double object construction," *Linguistic Inquiry* 19, 335-391.

Marcos, H. (1987) "Communicative functions of pitch range and pitch direction in infants." *Journal of Child Language, 14,* 255-268.

Menn, L. (1975) *Pattern, Control, and Contrast in Beginning Speech: a Case Study in the Development of Word Form and Word Function*, Ph. D. dissertation, Boston University.

Murasugi, K. and T. Nakatani. (2005) "The ontology of functional categories," Paper presented at Glow in Asia V, October 7th, New Delhi, India.

Murasugi, K. and T. Nakatani-Murai. (2007) "Very early language acquisition: A view from Japanese," Paper presented at the workshop on Early Child Phonology, August 17th, Chinese University of Hong Kong.

Nakatani, T. (2005) *The onset of child language*, M.A. Thesis, Nanzan University.

Nakatani-Murai, T. (2008) "On the properties of infant vocalization in the Japanese pre-verbal stage, " In Fujii, T., and T. Kawamura eds. *Nanzan Linguistics: Special Issue* 3 Vol.2, Nanzan University, 123-137.

Oller, D. K. (1980) "The Emergence of the Sound of Speech in Infancy, " In G. Yeni-Komshian, J. Kavanagh, and C. Ferguson (eds.), *Child Phonology: Vol. 1. Production*, Academic Press, New York.

Oller, D. K. (2000) *The Emergence of the Speech Capacity*, Lawrence Erlbaum Associates, Mahwah, New Jersey.

Prieto, P. and Vanrell, M.D.M. (2007) "Early Intonational Development in Catalan, " *Proceedings of ICPhS* XVI, 309-314.

Rizzi, L. (1997) "The finest structure of the left periphery," In Haegeman, l. ed. *Elements of Grammar: handbook of generative syntax*, Kluwer, 281-331.

Snow, D. (1994) "Phrase-final syllable lengthening and intonation in early child speech," *Journal of Speech and Hearing Research, 37*, 831-840

Snow, D. (2006) "Regression and Reorganization of Intonation Between 6 and 23 Months, " *Child Development*, 77, 281-296

Speas, P. and C. Tenny. (2003) "Configurational properties of point of view roles," In Anna Maria DiSciullo ed. *Asymmetry in Grammar*, John Benjamins, 315-344.

Tenny, C. (2006) "Evidentality, experiencers, and the syntax of sentience in Japanese," *Journal of East Asian Languages* 15, 245-288.

Venditti, J. (2005) "The J_ToBI model of Japanese intonation, " In Jun, S. A. ed. *Prosodic typology: The phonology of intonation and phrasing*, Oxford University Press, 172-200.

# A VP-SHELL ANALYSIS FOR THE UNDERGENERATION AND THE OVERGENERATION IN THE ACQUISITION OF JAPANESE CAUSATIVES AND POTENTIALS*

Chisato Fuji, Tomoko Hashimoto and Keiko Murasugi
Nanzan University

## 1. Introduction

In this paper, we discuss the undergeneration and the overgeneration observed in the acquisition of Japanese complex predicates. In particular, we focus on the errors children make in causatives and potentials. It has been reported that Japanese-speaking children, at around two to four years of age, produce causatives without the causative morpheme *-(s)ase* as in (1) (Suzuki 1987, Ito 1990, Murasugi and Hashimoto 2004, Murasugi, Hashimoto and Fuji 2007, among others).[1]

(1) Mama Akkun ***non -de***. (Akkun, 2;8) (adult form: nom-**(s)ase**-te)
mommy drink-Req

Literal meaning: 'Mommy, (please) drink Akkun(/me).'
Intended meaning: 'Mommy, (please) feed Akkun(/me) (with milk).'
(Murasugi and Hashimoto 2004)

In (1), the causative form *nom-(s)ase-te* should be used in this context, but the child does not phonetically realize *-(s)ase* and produces *non-de* instead.

Another type of error is also observed in the acquisition of causatives as in (2) (Ito 1990,

* An earlier version of this paper was presented at the BUCLD 32, and was published in *Online Proceedings Supplement of BUCLD 32*. We would like to thank the audience in the BUCLD 32, especially Tom Roeper, William Snyder, Jeff Bernath, Jean Crawford, Alison Gabriele, Jim Huang, Takuya Goro, Elena Koulidobrova and Akira Omaki for their questions and comments on this paper. Our sincere thanks go to Mamoru Saito, Keiko Yano, Yasuaki Abe, Tomoko Kawamura, Tomohiro Fujii, Kensuke Takita, Seichi Sugawa, the members of the undergraduate seminar classes of Murasugi, and the anonymous reviewers of the BUCLD 32 for their helpful discussions and suggestions on this paper.

[1] Abbreviations used in the glosses are as follows: Acc=accusative C=complementizer, Case, Cause=causative, Cop=copula, Dat=dative Case, I=inflection, Int=interjection, Intr=intransitive, N=noun, Neg=negation, Nom=nominative Case, Pres=present, Past=past, Pot=potential, Req=request, Top=topic, Trans=transitive

*Nanzan Linguistics 4, 21-41*

Arai 2003, Murasugi and Hashimoto 2004, among others).

(2) a. *Nomi* ***-tyatye*** -te. (-tyatye = -sase) (Akkun, 3;7) (adult form: nom-**(s)ase**-te)
drink -Cause -Req

Intended meaning: '(Please) feed (me with miso soup.)'
(Murasugi and Hashimoto 2004)

b. Kuruma -o too ***-si*** ***-sase*** -ru. (Taatyan, 3;10) (adult form: too-**s**-(r)u)
car -Acc pass -Cause -Cause -Pres

Intended meaning: '(I'll) let the car pass through.' (Arai 2003)

In (2a), the causative morpheme *-(s)ase* should be attached to the verb stem *nom* 'to drink.' However, the child "erroneously" attaches *-tyatye* (meaning *-sase*) to the preverbal form *nomi*, and produces *nomi-tyatye-te*. (2b) is an example of doubled causatives. Although the transitive verb *too-s-(r)u* 'to let … pass' itself can be a causative verb, the child additionally attaches the unnecessary causative morpheme *-sase* to it, yielding the unacceptable form *too-si-sase-ru*. The Japanese-speaking children overgenerate the morpheme *-sase* in either case.

The similar errors have been reported in the acquisition of *-(rar)e* potential complex predicates (Okubo 1967, Noji 1974-1977, Ito 1990, Shibuya 1994, Arai 2006, among others). Arai (2006), for instance, gives a phonological explanation for the erroneous potential forms productively produced by a Japanese-speaking child. The data discussed in Arai (2006) and the data of Sumihare (Noji 1974-1977) are further reanalyzed by Yano (2007a) under Murasugi and Hashimoto's (2004) VP-shell analysis. The relevant examples are shown in (3) and (4).

(3) Mother: Zenbu tabe **-rare** -ru kara ne.
all eat -Pot -Pres as Int '(You) can eat all.'

Child: Zenbu tabe *ϕ* -ru ne. (Sumihare, 2;1) (adult form: tabe-**rare**-ru)
all eat -Pres Int

Literal meaning: '(I) eat all.'
Intended meaning: '(I) can eat all.' (Noji 1974-1977)

(4) a. Yar ***-(r)are*** -nai. (Taatyan, 3;5) (adult form: yar-**e**-nai)
do -Pot -Neg

Intended meaning: '(I) cannot do.'

b. Zyoozuni mot ***-e*** ***-rare*** -ta. (Taatyan, 4;2) (adult form: mot-**e**-ta)
well have-Pot -Pot -Past

Intended meaning: '(I) could bring (this) up very well.' (Arai 2006)

(3) is an example of the undergeneration. According to the observer, the child repeats his

mother's utterance without using the *-rare* form (Noji 1974-1977). (4a) and (4b), on the other hand, are the examples of the overgeneration. In the case of (4a), the child intends to say that he cannot do something, and the potential morpheme *-e* should be attached to the verbal stem. However, *-rare* is attached, and the erroneous form *-yarare*, instead of *-yare*, is produced. In (4b), the child attaches the morpheme *-e* correctly to the verbal stem, but additionally attaches the unnecessary morpheme *-rare*, thereby producing an unacceptable doubled potential form. In either case, the morpheme *-rare* is overgenerated.

The purpose of this paper is to analyze the undergeneration and the overgeneration phenomena observed in the acquisition of Japanese causative and potential complex predicates. This paper is an extension of Murasugi and Hashimoto (2004), Murasugi, Hashimoto and Fuji (2007) and Yano (2007a). Yano's basic line of argument is that the intermediate acquisition stages for both types of the complex predicate can be uniformly explained by Murasugi and Hashimoto's (2004) *v*-VP frame analysis. We pursue this line of argument based on the analysis of longitudinal studies of Japanese-speaking children reported in the previous literatures, e.g., Akkun (Murasugi and Hashimoto 2004), Sumihare (Noji 1974-1977), Taatyan (Arai 2003, 2006), and the subjects observed by Okubo (1967), Ito (1990), Shibuya (1993, 1994), Suzuki (1987), among others. We argue that the parallel undergeneration and overgeneration phenomena are observed in the acquisition of *-(rar)e* potential complex predicates as well as *-(s)ase* causative complex predicates. We provide supporting evidence for Murasugi and Hashimoto's (2004) proposal that the undergeneration is due to the Japanese-speaking children's initial hypothesis that the *v* does exist but it is phonetically null (just as in adult English). We also support Murasugi's (2007a,b,c) proposal that the overgeneration takes place because of the erroneous realization of the *v* and the use of the undifferentiated verbal form.

This paper is organized as follows. In Section 2, we discuss Japanese adult grammar of causatives and potentials. We overview the proposals made by Murasugi and Hashimoto (2004) and Bobaljik and Wurmbrand (2005, 2007) that Japanese complex predicates have *v*-VP or VP-shell structures (Larson 1988, Hale and Keyser 1993, 2003, Chomsky 1995, Harley 1995, 2006, among others). Then, we discuss the undergeneration phenomenon in Section 3, and the overgeneration phenomenon in Section 4. Section 5 concludes this paper.

## 2. The Adult Grammar of Japanese Complex Predicates

### 2.1. *-(S)ase* Causatives

Japanese morphological *-(s)ase* causatives are formed by attaching the causative morpheme *-(s)ase* to the verb stems. It has been argued that *-(s)ase* is ambiguous in two ways (Miyagawa 1984, 1998, Harley 1995, 2006, Matsumoto 2000, Murasugi, Hashimoto and Kato 2003, Murasugi and Hashimoto 2004, among others). The sentence in (5), for instance, is ambiguous between (6a) and (6b).

(5) Taroo -ga Hanako -ni pan -o tabe -sase -ta.
-Nom -Dat bread-Acc eat -Cause -Past

'Taroo made Hanako eat some bread.'

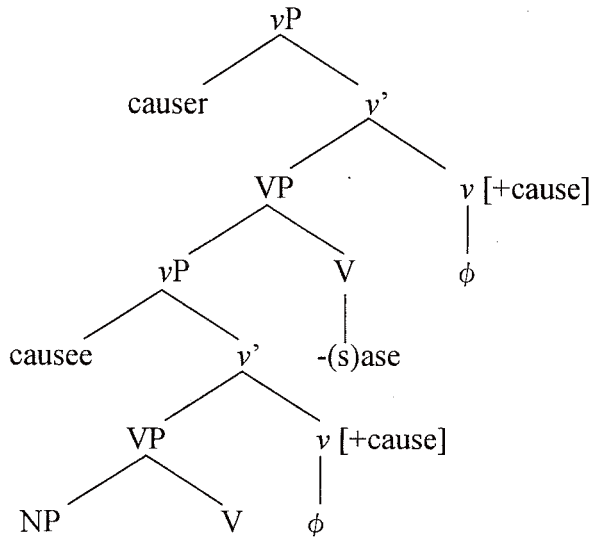
(6) a. Taroo gave an order to Hanako and Hanako ate some bread.

b. Taroo fed Hanako with some bread.

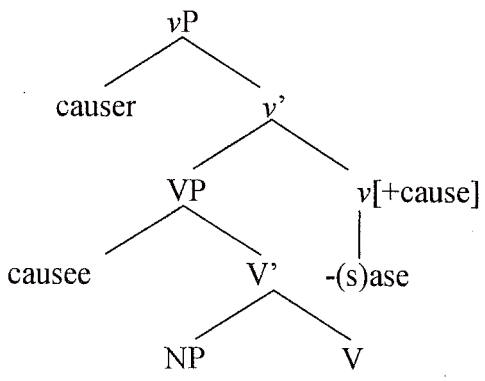
In one reading, as shown in (6a), *Hanako* is an agent, whereas it is a goal in another reading as shown in (6b). The sentence with the former reading is called 'the syntactic causative,' while that with the latter reading is called 'the lexical causative.'

Based on the VP-shell hypothesis (Larson 1988, Hale and Keyser 1993, 2002, Chomsky 1995, among others), Murasugi and Hashimoto (2004) propose the structures for these two types of *-(s)ase* causative, as shown in (7a) and (7b), respectively.

(7) a. syntactic causative




b. lexical causative




(Murasugi and Hashimoto 2004)

As shown in (7), a syntactic causative has the bi-clausal structure, whereas a lexical causative has the mono-clausal structure. According to their analysis, *-(s)ase* is ambiguous in the adult grammar of Japanese. In one case where it is an independent V, it takes a *v*-projection as its complement, yielding a complex structure as in (7a). In this case, the dative argument, or the causee, is interpreted as an agent. In the other case, it combines with the V and forms a complex verb, yielding a simple sentence with no embedding as in (7b). The dative argument is then interpreted as a goal. In Murasugi and Hashimoto's (2004) terms, Japanese causative morpheme *-(s)ase* is a realization of the [+cause] *v*.[2]

[2] Following Miyagawa (1980, 1984, 1998), Zenno (1985), Harley (1995), Matsumoto (2000), among others, Harley (2006) also argues that *-sase* is ambiguous between syntactic and lexical causatives, and that syntactic causatives are bi-clausal while lexical causatives are mono-clausal. She

Following Hale and Keyser (1993, 2003), Murasugi and Hashimoto (2004) give the *v*-VP frame structure to Japanese transitive and intransitive sentences as well. Japanese transitive and intransitive verbal forms are distinguished with their morphemes as in (9), and these morphemes are in the *v* as shown in (10).[3]

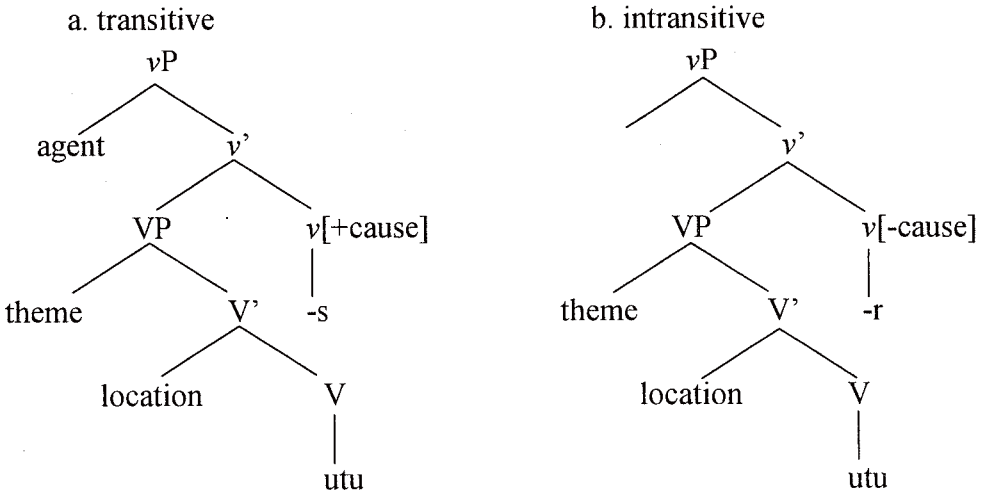
(9) a. utu-**s**-(r)u (photograph-Pres) / utu-**r**-(r)u (be photographed-Pres)

b. todok-**e**-ru (deliver-Pres) / todok-(r)u (be delivered-Pres)

c. os-**ie**-ru (teach-Pres) / os-**owar**-(r)u (be taught-Pres)

d. too-**s**-(r)u (let … pass-Pres) / too-**r**-(r)u (pass-Pres)

(10)




(Murasugi and Hashimoto 2004)

Unlike Japanese, the [±cause] *v* is not phonetically realized in English transitive and intransitive sentences, as in (11).

(11) a. Mary sank the boat. (transitive)

b. The boat sank. (intransitive)

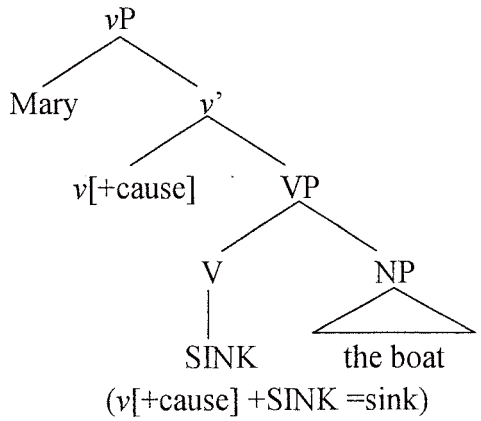
The structures of (11a) and (11b) are represented in (12a) and (12b) respectively.

---

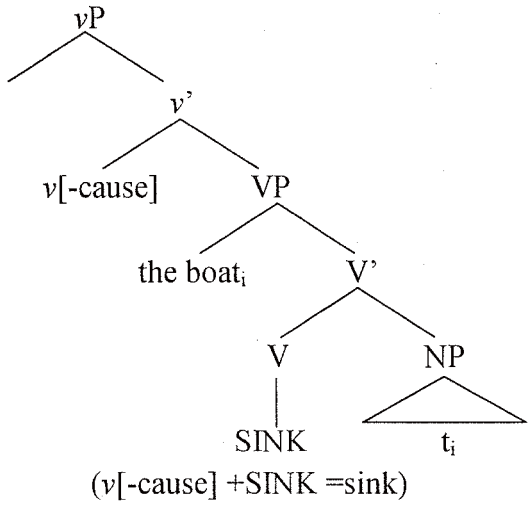
further assumes the *v*-VP structure for Japanese causatives based on Hale and Keyser (1993, 2002). Harley (2006), however, considers *-sase* to be the head of the *v*P in both syntactic and lexical causatives. According to her analysis, in lexical causatives, a CAUS $v^{o}$ is adjacent to a root. On the other hand, in syntactic causatives, a CAUS $v^{o}$ is not adjacent to a root and takes another *v*P complement.

[3] Japanese transitive and intransitive morphemes are not always overt. For instance, in the case of *todok-(r)u* in (9b), the [-cause] *v* is realized phonetically null like English verbs.

(12) a. transitive




b. intransitive




(Larson 1988, Hale and Keyser 1993, 2002, Chomsky 1995)

In (12a) and (12b), the verb 'sink' consists of two abstract verbs: the [±cause] *v* and V. The [±cause] *v* is realized phonetically null, and the transitive and the intransitive verbs have the same verbal form.

## 2.2. *-(Rar)e* Potentials[4]

Japanese *-(rar)e* potential complex predicates are constructed by adding the morpheme *-(rar)e* '-able' to the verb stems. The vocalic verb stems, whose final elements are vowels, take the morpheme *-rare*, and the consonantal verb stems, whose final elements are consonants, take the morpheme *-e*, as shown in (13) (Shibuya 1993, Kinsui 2003, Arai 2006, among others).

(13) a. Vocalic verbs: stem +*-rare*

| | 'eat-Pot-tense' | 'see-Pot-tense' |
|---|---|---|
| present: | tabe-**rare**-ru | mi-**rare**-ru |
| past: | tabe-**rare**-ta | mi-**rare**-ta |

b. Consonantal verbs: stem + *-e*

| | 'go-Pot-tense' | 'make-Pot-tense' |
|---|---|---|
| present: | ik-**e**-ru | tukur-**e**-ru |
| past: | ik-**e**-ta | tukur-**e**-ta |

The verbs *tabe-ru* 'to eat' and *mi-ru* 'to see' shown in (13a) are vocalic, and the morpheme

[4] The analysis of child potentials presented here is an extension of Yano's MA thesis (2007a) submitted to Nanzan University, which was also presented at Connecticut-Nanzan-Siena Joint Workshop on Linguistic Theory and Language Acquisition at Nanzan University, February 21st in 2007, and in Nanzan Linguistics Special Issue 3.1.

*-rare* is attached to the verb stems to derive the potential forms, *tabe-rare-ru* 'can eat' and *mi-rare-ru* 'can see.' In contrast, *ik-u* 'to go' and *tukur-(r)u* 'to make' shown in (13b) are consonantal verbs, and the morpheme *-e* is attached to the verb stems to derive the potential forms, *ik-e-ru* 'can go' and *tukur-e-ru* 'can make.' The examples in (14) indicate the typical potential sentences.

(14) a. Taroo -wa hitoride supagetti -o tabe **-rare** -ru.
-Top by oneself spaghetti -Acc eat -Pot -Pres

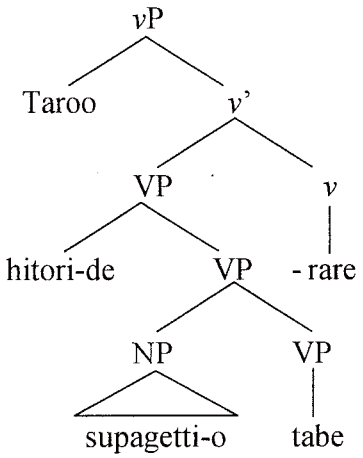
'Taroo can eat spaghetti by himself.'

b. Hanako -wa hitoride gakkoo-ni ik **-e** -ru.
-Top by oneself school -Dat go-Pot -Pres

'Hanako can go to school by herself.'

There are several important proposals regarding the structure of potentials (e.g., Tada (1992) and Koizumi (1995) for the AGR-based approach, Saito and Hoshi (1998) for the Head-Head Merger approach, and Takano (2003) for the Prolepsis approach). In this paper, we assume Bobaljik and Wurmbrand's (2005, 2007) analysis that the potential morpheme *-(rar)e* is the head of the *v*P. Given their analysis, the structure of (14a) would be the one shown in (15).

(15)




Thus, under the *v*-VP frame analysis, the potential morpheme *-(rar)e*, transitive and intransitive morphemes, and the causative morpheme *-(s)ase* in lexical causatives are all the head of the *v*P.

In the following sections, we analyze the undergeneration and the overgeneration in *-(s)ase* causatives and *-(rar)e* potentials, and provide some supporting evidence for the hypothesis that children, in the course of language acquisition, fail to realize the correct adult form for the *v* (Murasugi and Hashimoto 2004, Murasugi 2007a,b,c).

## 3. The Undergeneration

According to Murasugi and Hashimoto (2004), the structure of VP-shell itself is acquired very early,[5] but it takes time for the Japanese-speaking children to acquire the "correct" lexical form of the *v*. Murasugi and Hashimoto (2004) propose that there is a stage where children hypothesize that the *v* is realized phonetically null. This stage corresponds to what we call the stage of the undergeneration.

### 3.1. The Undergeneration in *-(S)ase* Causatives

In the early two-year-old, children's utterances which have the causative meaning (or intention) are produced without the causative morpheme *-(s)ase* (Murasugi and Hashimoto 2004). We call such phenomenon 'the undergeneration.' A couple of examples are given in (16a =(1)) and (16b).

(16) a. Mama Akkun ***non*** ***-de***. (Akkun, 2;8) (adult form: nom-**(s)ase**-te)
mommy drink -Req

Literal meaning: 'Mommy, (please) drink Akkun(/me).'
Intended meaning: 'Mommy, (please) feed Akkun(/me) (with milk).'
(Murasugi and Hashimoto 2004)

b. Kutyu ***hai*** ***-te***. (Sumihare, 2;1) (adult form: hak-**(s)ase**-te)
a pair of shoes put on -Req

Literal meaning: '(Please) put on (your) pair of shoes.'
Intended meaning: '(Please) put a pair of shoes on (me).'
(Murasugi, Hashimoto and Fuji 2007)

As shown in (16a), Akkun intends to say *nom-(s)ase-te* to ask his mother to feed him, but utters *non-de* 'please drink' instead, without lexically realizing *-(s)ase*. Murasugi, Hashimoto and Fuji (2007) find the same type of undergeneration error in the longitudinal data of Sumihare (Noji 1974-1977). In (16b), Sumihare produces *hai-te* instead of *hak-(s)ase-te*. He does not produce *-(s)ase* though it is clear that he intends to ask someone to put a pair of shoes on him. This type of erroneous causative has been widely observed in previous literatures (e.g., Okubo 1967, Suzuki 1987, Ito 1990, Arai 2003, among others).

---

[5] From around 1;5 through 3 years of age, the sentences with onomatopoeic expressions and *suru/sita/site* 'do/did/doing' as in (i) are often produced by Japanese-speaking children.

(i) Mama Akkun hai doozyo tiyu. (tiyu = suru) (Akkun, 2;5)
mommy yes please do

'Akkun(/I) will give (it) to Mommy.' (Murasugi and Hashimoto 2004)

Murasugi and Hashimoto (2004) propose that *suru/sita/site* assigns an agent role to a subject. That is, the *v* is realized as *suru/sita/site* in this stage, and children have VP-shell structures. See Murasugi and Hashimoto (2004) and Murasugi, Hashimoto and Fuji (2007) for more data and detailed analysis.

Murasugi and Hashimoto (2004) point out that the period in which erroneous causatives in (16) are observed overlaps with that of children's transitive/intransitive alternation errors observed by them and other researchers (Okubo 1967, Ito 1990, among others). Children start producing the intransitive and the transitive verbs "correctly" (i.e., in the adult form) at around the age of two. It should be noted, however, not all the verbal forms are always "correct." The relevant examples of the transitive/intransitive alternation errors are given in (17).

(17) a. Akkun ima kaya koe ***nayab*** -u. (*nayab*-u = *narab*-(r)u) (Akkun, 2;11)
now from this be-in-line-Pres (adult form: **narab-e**-ru)

Intended meaning: 'From now, Akkun(/I) will put these in line.'
(Murasugi and Hashimoto 2004)

b. ***Nui***-ta koko. (Sumihare, 2;1) (adult form: **nuk-e**-ta)
pull-Past here

Intended meaning: '(This) is out from here.'
(Fuji 2006, Murasugi, Hashimoto and Fuji 2007)

In (17a), instead of the transitive verb *narab-e-ru* 'to put...in line,' Akkun erroneously produces what corresponds to the intransitive verb *narab-(r)u* 'to be...in line.' In contrast, in (17b), the intransitive verb *nuk-e-ta* 'came off' must be used in the adult grammar. However, Sumihare uses the transitive form *nui-ta* 'pulled.'

Murasugi and Hashimoto (2004) argue that both of the causatives without *-(s)ase* and the transitive/intransitive alternation errors are due to children's initial hypothesis that the [±cause] *v* is phonetically null. To be precise, the utterances in (16) are not 'omission' errors, but they are 'the undergeneration.' Although the children apparently omit *-(s)ase*, they just assume the *v* to be null. This also holds for the transitive/intransitive alternation errors. As discussed in Section 2.1, in adult Japanese, the [±cause] *v* are basically overt, and therefore a transitive verb and an intransitive verb have different forms, such as *utu-s-u* 'to photograph' and *utu-r-u* 'to be photographed.' However, children assume the [±cause] *v* to be null in this period, and they do not distinguish the two forms. Thus, Murasugi and Hashimoto (2004) propose that this is the stage where children know that either *-s* or *-r* should be attached to the verb (probably because they never hear the verb without these morphemes), and hence, children randomly attach these morphemes directly onto the V. This is why children sometimes produce verbal forms correctly and sometimes do not.

### 3.2. The Undergeneration in *-(Rar)e* Potentials

Like causatives, children start producing potentials without the potential morpheme *-(rar)e* in the early two-year-old. We find the same type of undergeneration as causatives, as shown in (18).

(18) a. Child: Zenbu tabe ϕ -ru ne. (Sumihare, 2;1) (adult form: tabe-**rare**-ru)
all eat -Pres Int

Literal meaning: '(I) eat all.'
Intended meaning: '(I) can eat all.' (Noji 1974-1977)

b. Sime ϕ nai wa yo. (2;3) (adult form: sime-**rare**-nai)
close Neg Int Int

Literal meaning: '(I) don't close (it).'
Intended meaning: '(I) cannot close (it).' (Okubo 1967)

In (18a=(3)), as we mentioned in Section 1, Sumihare repeats after his mother without using the *-rare* form, despite the fact that the mother speaks to her son using the *-rare* form *tabe-rare-ru* 'can eat.' (18b) is the same type of utterance produced by another Japanese-speaking child. Okubo (1967) reports that the child intends to say *sime-rare-nai* 'cannot close,' but in the actual speech, he produces the verbal form *sime-nai* 'don't close,' without attaching the potential morpheme *-rare*. Given that the potential morpheme is in the *v* (Bobaljik and Wurmbrand 2005, 2007), this error can be well explained under Murasugi and Hashimoto's (2004) VP-shell analysis. That is, children in this stage, at around the age of two, hypothesize that the *v* is phonetically null.

On the other hand, the "correct" potential forms also appear in the children's early production (Okubo 1967, Ito 1990, Shibuya 1994, Arai 2006, Yano 2007a,b,c, among others). Shibuya (1994) and Arai (2006) report that children start producing the correct potential forms with the morpheme *-e* at around the age of two. Based on her analysis of Noji corpus from CHILDES database (MacWhinney 2000), Yano (2007a,b,c) also finds that *-e* potentials appear very early, at around 2;0. Some examples of Sumihare's potential sentences are given in (19).

(19) a. Too -r -**e** -n. (Sumihare, 2;0)
pass -Intr -Pot -Neg

'(I) cannot pass (here).' (Yano 2007a,b,c)

b. Kakko -ga hak -**e** -n. (Sumihare, 2;2)
shoes -Nom put on -Pot -Neg

'(I) cannot put on my shoes.' (Yano 2007a,b,c)

In (19a) and (19b), Sumihare apparently produces potential forms correctly. *Too-r-e-n* 'cannot pass' in (19a) and *hak-e-n* 'cannot put on' in (19b) are the short forms of *too-r-e-nai* and *hak-e-nai*. Those are possible truncated forms in some Japanese dialects.

Then, are potentials really acquired in such an early stage, even at the age of two? An possible answer for this question is a positive one, i.e., the adult syntax of potentials is acquired very early compared with other complex predicates. The other possibility is, on the

contrary, what apparently looks like the adult potential form does not, in fact, have exactly the same structure as adults'. Murasugi (2007a,b,c) gives an answer to this problem. She proposes that children's predicates produced at the early age of two are the uninflected (undifferentiated) form, and that the *v* is phonetically null in this stage. Hereafter, we support the latter possibility or Murasugi's (2007a,b,c) analysis: Sumihare's potential predicates produced at the early age of two, in fact, are the undifferentiated form, and this is the stage where the *v* is phonetically null as well. In other words, in this stage, the children attach the potential morpheme *-e* onto the V.

Some evidence for this proposal is found in Murasugi and Fuji's (2007) analysis of the longitudinal data of Sumihare (Noji 1974-1977). First, Sumihare, in the stage where the undergeneration in question is observed, produces "erroneous" tense inflections as shown in (20).

(20) Tootyan, koko gomi tui ***-ta*** yo. (Sumihare, 2;1)
father here dust stick-Past Int (adult form: tui-**tei-ru** (perfect))

Intended meaning: 'Daddy, you have got the dust here (=on your cheek).'
(Murasugi and Fuji 2007)

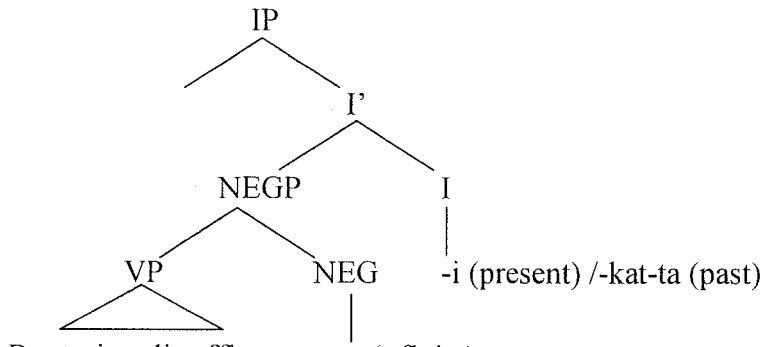
The context of (20) is that Sumihare wants to tell his father that his father has dust on his cheek. In this context, the perfect form *-tei-ru*[6] should be used. However, Sumihare employs the simple past form and says *tui-ta* 'stuck' instead of *tui-te iru* 'have been stuck.' Based on the detailed analysis of other perfect and progressive forms produced by Sumihare (Noji 1974-1977), Murasugi and Fuji (2007) argue that tense/aspectual markers such as *-ta*, *-(r)u*, or *-te(iru)* and the stems of verbs are not differentiated at the very early stage. This analysis stands upon the proposal by Murasugi (2007a,b,c) that the verbal forms of Japanese-speaking children at around the age of two are the unmerged form of the verb and the tense, and that the children's functional categories such as T and *v* are not phonetically realized at the very early stage in such agglutinative language as Japanese. The verbs and the tense/aspectual markers are unanalyzed (undifferentiated), and they are base-generated in the V. That is, Sumihare regards the whole verbal form *tui-ta* in (20) as V.

The second evidence is, as is discussed in Murasugi and Fuji (2007), found in Sumihare's erroneous negative forms observed in the intermediate acquisition stage in question. In adult Japanese, *-nai* 'not' is a verbal predicate which itself carries finite tense (Sano 2000). The structure of negation is represented schematically in (21).

---

[6] Japanese *-tei-ru* sentences are ambiguous between the progressive and the perfect interpretations.

(21)




(Based on Sano 2000)

The examples in (22), however, indicate that Sumihare, in an early age of two, does not have the structure in (21).

(22) a. Father: Sinbun tot -ta?
Newspaper take -Past 'Have (you) fetched the newspaper yet?'

Sumihare: Tot ***-ta*** -nai. (Sumihare, 2;1) (adult form: tot-**te**-nai)
take -Past -Neg

Intended meaning: '(I) haven't.'

b. Mother: Oti -ru yo.
fall down -Pres Int '(You) will fall down.'

Sumihare: Oti ***-ta*** -nai. (Sumihare, 2;1) (adult form oti-**te**-nai/oti-nai)
fall down -Past -Neg

Intended meaning: '(I) won't.' (Murasugi and Fuji 2007)

In (22a), Sumihare is asked if he has already fetched the newspaper, and he intends to say, 'No, I haven't.' For this context, the negative form *tot-te-nai* 'haven't taken' should be used. However, Sumihare puts *-nai* on the past tense form *tot-ta* 'took,' and produces the unacceptable negative form *tot-ta-nai*. (22b) shows the same type of error. Even though his mother speaks to him using the present verbal form *oti-ru* 'fall down,' the child produces *oti-ta-nai*, putting *-nai* on the past tense form *oti-ta* 'fell down,' despite the fact that the negative form *oti-te-nai* or *oti-nai* should be used for this context.

Recall here that in such agglutinative language as Japanese, the functional categories such as T and *v* are not phonetically realized in the early stage, and the verbal forms of Japanese-speaking children at around the age of two are the unmerged form (Murasugi 2007a,b,c). The examples given above create one of the good cases for this hypothesis. The negative marker *-nai* 'not' is attached to the verbal form, *totta* or *otita* in this acquisition stage, because the child regards the whole verb containing the tense marker as a rote form.

Thus, the discussion so far leads us to presume that Sumihare, at the early age of two, produces the undifferentiated verbal forms as Murasugi (2007a,b,c) discusses. Then, it is

natural to consider that the potentials found in this period are also undifferentiated verbs. Given this analysis, the examples in (19) would be, in fact, the "lexical potentials." That is, the child attaches the potential morpheme *-e,* not as a realization of the *v*, but as a part of the V. This analysis seems to be plausible since none of early potentials produced by Japanese-speaking children has the *-(r)are* form. The *-(r)are* potentials forms appear at around the age of 2;5, according to Noji (1974-1977), Shibuya (1994) and Arai (2006) (see Fuji, Hashimoto and Murasugi (2008a) for details.)

Note here that the children's potentials without a potential morpheme *-(rar)e* and the "lexical potentials" are all used with the potential meaning in the "correct" context. Hence, it is plausible that the *v* does exist and it has the feature (i.e., [+potential]) at this point, but it is phonetically null in the stage of the undergeneration, as Murasugi and Hashimoto (2004) propose.

## 4. The Overgeneration

In Section 3, we argued that the undergeneration phenomenon observed in Japanese causatives and potentials are elegantly explained under Murasugi and Hashimoto's (2004) *v*-VP frame analysis. In this section, we turn to the overgeneration phenomenon. We point out that the two types of overgeneration are observed in a parallel way in the acquisition of Japanese causatives and potentials. We argue there is an intermediate acquisition stage where the children know that the *v* has to be phonetically realized in their target grammar, but the children (i) have not acquired the "correct (adult)" lexical forms, and/or (ii) have still the undifferentiated rote verbal forms.

### 4.1. The Overgeneration in *-(S)ase* Causatives

After the stage of the undergeneration, Japanese-speaking children start producing lexical causatives (at around the age of three for Akkun, and around 2;5 for Sumihare) (Murasugi and Hashimoto 2004, Murasugi, Hashimoto and Fuji 2007).

(23) a. Akkun -ni tabe -**sase** -tee. (Akkun, 3;6)
-Dat eat -Cause -Req

'(Please) feed Akkun(/me) (with food).' (Murasugi and Hashimoto 2004)

b. Seizi-kun boku-ga ne nak-**asi** -tan ja -nai -no yo. (Sumihare, 2;7)
I -Nom Int cry -Cause -Past Cop -Neg-C/N Int

'It is not me who made (Mr.) Seiji cry.' (Murasugi, Hashimoto and Fuji 2007)

In (23a), *Akkun* is not an agent but a goal, since Akkun is asking his mother to put some food directly into his mouth. *Seizi-kun* in (23b) is not an agent either, because his action, i.e., crying, was caused by someone else. The object *Seizi-kun* is scrambled to (or topicalized in) the sentence-initial position, and the agent is *boku* (I, or Sumihare). Thus, the verbs in (23) are

analyzed to be lexical causatives, and it is plausible to consider that each sentence in (23) has a mono-clausal structure. Children, at this stage, are apparently aware that the [±cause] *v* must be phonetically realized.

Note here that, exactly at this stage, the overgeneration also takes place. There are in fact two types of overgeneration: one is "a verb + *-(s)ase*" form, and the other is "a causative verb + a causative morpheme" form. The examples of the first type of overgeneration are given in (24).

(24) a. Ok ***-i*** ***-sasi*** -te. (Sumihare, 3;1) (adult form: ok-**osi**-te)
get up-Intr -Cause -Req

Intended meaning: '(Please) get (me) up.' (Noji 1994-1997)

b. *Nomi* ***-tyatye*** -te. (-tyatye = -sase) (Akkun, 3;7) (adult form: nom-**(s)ase**-te)
drink -Cause -Req

Intended meaning: '(Please) feed (me with miso soup.)'
(Murasugi and Hashimoto 2004)

c. Gyunyu *nomi* ***-sase*** -te. (Taatyan, 2;9) (adult form: nom-**(s)ase**-te)
milk drink -Cause -Req

Intended meaning: 'Please feed (me) with milk.' (Arai 2003)

In (24a), Sumihare asks someone to get him up. Here, the imperative form of the lexical causative verb *ok-os-(r)u* 'to get ... up,' or *ok-osi-te*, is expected in the adult grammar, but Sumihare erroneously attaches *-sasi* (which is sometimes used instead of the standard *-sase* in his dialect) to the stem of the intransitive verb *ok-i-ru* 'to get up.' (24b=(2a)) shows the similar type of error. The correct causative form of the verb *nom-(r)u* 'to drink' is *nom-(s)ase-ru*, which is formed by attaching the causative morpheme *-ase* to the verb stem, *nom*. However, Akkun erroneously attaches *-tyatye*, or the child's phonetic form of *-sase-* to its preverbal form *nomi*, and makes *nomi-tyatye-te*. In (24c), a child (not Sumihare) also produces *nomi-sase-te*, instead of *nom-(s)ase-te*. Those children commonly overgenerate the causative morpheme *-sase* in the cases where the transitive morpheme *-os* or the causative morpheme *-ase* should be chosen.

These data indicate that the children know that the *v* should be phonetically realized to make causatives, but they fail in choosing the right one among several ways of the realization of the causative morphemes. Interestingly enough, those children tend to choose the unmarked bound morpheme form, i.e., *-sase*.

The second type of overgeneration, "a causative verb + a causative morpheme," is produced at around later three years old upto five years old. The relevant examples are shown in (25).

(25) a. Kuruma -o too ***-si*** ***-sase*** -ru. (Taatyan, 3;10) (adult form: too-**s**-(r)u)
car -Acc pass -Cause -Cause -Pres

Intended meaning: '(I'll) let the car pass through.' (Arai 2003)

b. Kondo mi ***-se*** ***-si*** -te ageru kara ne. (Taatyan, 4;6)
next time see -Cause -Cause -I give/let as Int (adult form: mi-**se**-te)

Intended meaning: '(I'll) show (it to) you next time.' (Arai 2003)

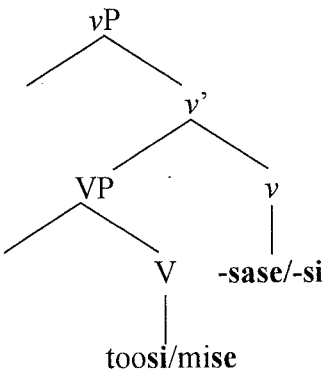
c. Mag-***e*** ***-si*** -te. (3;11) (adult form: mag-**e**-te)
bend-Cause -Cause -Req

Intended meaning: '(Please) bend (this).' (Ito 1990)

In (25a (=2b)), the transitive verb *too-s-(r)u* 'to let … pass,' which is a causative verb as well, is erroneously associated with an additional causative morpheme *-sase*. (25b) is another example of doubly-marked causatives. The transitive verb *mi-se-ru* 'to show' or 'to let … see' is, in fact, a causative verb containing the transitive (or causative) morpheme *-se* in it. However, the child adds the additional causative morpheme *-si*[7] and produces *mi-se-si-te* "by mistake." The example in (25c) reported by Ito (1990) can also be classified into the causative doubling overgeneration. The verb *mag-e-ru* 'to bend' is a lexical causative verb containing the transitive (or causative) morpheme *-e* in it, but the child wrongly attaches the additional *-si* to the already-lexical causative verb.

Then, why does the second type of overgeneration take place? We conjecture that this is the stage where children still have difficulty in finding the appropriate form for the stem of a verb as well as the correct form of a bound morpheme. What children know at this stage is an undifferentiated causative verb as the stem of a bare verb, and the mechanism that the *v* should be phonetically realized to make a causative verb. Hence, those children attach additional causative morphemes *-sase* or *-si* onto the undifferentiated V, as illustrated in (26).

(26)




[7] The causative morphemes *-(s)ase* and *-(s)e* are often produced as *-(s)asi* and *-(s)i* in the western dialects of Japanese.

Since children regard the whole verbal forms *toosi* and *mise* as V, they add the causative morphemes in the position of the *v* to realize it phonetically. This is probably the reason for the causative doubling phenomenon or the second overgeneration phenomenon where the lexical causatives are associated with additional unnecessary causative morphemes.[8]

### 4.2. The Overgeneration in -*(Rar)e* Potentials

Japanese-speaking children start producing potential sentences with the morpheme *-rare* at around the age of 2;5 (Shibuya 1994, Arai 2006, Fuji, Hashimoto and Murasugi 2008a, among others). (27) is an example from Arai (2006).

(27) Ake -rare-nai. (Taatyan, 2;5)
open -Pot -Neg

'(I) cannot open.' (Arai 2006)

In (27), Taatyan produces the potential sentence correctly with the morpheme *-rare*. Children apparently know by this stage that the potential morpheme *-(rar)e* is the realization of the *v*.

However, just like the causatives, in the acquisition of potentials as well, we find in Noji (1974-1977), Shibuya (1994), and Arai (2006) that the Japanese-speaking children go through the stage of overgeneration. And just like the causatives, two types of overgeneration are also found in the acquisition of *-(rar)e* potentials. One type of overgeneration is "a verb + *-rare*." Observe the examples in (28a) and (28b (=4a)) found in Arai (2006).

(28) a. Taakun hitori-de tukur ***-(r)are***-ta. (Taatyan, 3;0) (adult form: tukur-**e**-ta)
by oneself make -Pot -Past

Intended meaning: 'Taakun(/I) could make (this) by himself(/myself).'
(Arai 2006)

b. Yar-***(r)are*** -nai. (Taatyan, 3;5) (adult form: yar-**e**-nai)
do -Pot -Neg

Intended meaning: 'I cannot do.' (Arai 2006)

In the standard Japanese, *-rare* is attached to vocalic verb stems, while *-e* is attached to consonantal verb stems, as is discussed in Section 2. However, the child overgenerates *-rare* in this stage. According to Arai (2006), the child has his own morpho-phonological rule, and puts *-rare* on the vocalic verbs, and *-are* on the consonantal verbs. Thus, in (28a) and (28b), the morpheme *-are* attaches to the stems of the verbs *tukur-(r)u* 'to make' and *yar-(r)u* 'to

[8] Mamoru Saito brought our attention to this analysis. The overgeneration in (25) can be considered as the morphological one since the number of argument does not increase unlike the famous example of the syntactic overgeneration 'Don't giggle me' (Bowerman 1982). We would like to thank Jean Crawford and William Snyder for also making this point to us.

do,' though the morpheme *-e* should be attached in the adult grammar.[9]

The same type of overgeneration is found in Sumihare's data as well (Fuji, Hashimoto and Murasugi 2008a).

(29) Kaatyan nakanaka tor ***-(r)are*** -n yo. (Sumihare, 3;3)
mommy not easily take -Pot -Neg Int

Intended meaning: 'Mommy, (I) can't take (it) easily.' (Noji 1974-1977)

In (29), the morpheme *-e* should be attached to yield the potential form *tor-e-n*, but Sumihare attaches *-(r)are* to the verb stem and produces the erroneous potential form. (28) and (29) indicate that children tend to choose an unmarked potential morpheme for the overgeneration just like the case of the causative *-sase*. In the case of potentials, *-rare* seems to be the unmarked potential morpheme. In the stage where the overgeneration in the acquisition of potentials is found, children have knowledge that the *v* is phonetically realized, but they do not know the "correct" adult bound form for the *v*, and hence, they choose the unmarked potential morpheme *-rare*.

The second type of overgeneration, i.e., "a potential verb + a potential morpheme," is also observed in Japanese-speaking children at three through five years of age.[10] A couple of examples are given in (30a) and (30b (=4b)).

(30) a. Gakko -ni ik-***e*** ***-re*** -ru yo. (Sumihare, 3;1) (adult form: ik-**e**-ru)
School -Dat go-Pot -Pot -Pres Int

Intended meaning: '(I) can go to school by myself.' (Noji 1974-1977)

b. Zyoozuni mot ***-e*** ***-rare*** -ta. (Taatyan, 4;2) (adult form: mot-**e**-ta)
well have-Pot -Pot -Past

Intended meaning: '(I) could bring (this) up very well.' (Arai 2006)

In (30), children attach an additional potential morpheme *-re* or *-rare* onto the already-potential-verbs (or "lexical" potentials). (30a) indicates that Sumihare produces an erroneous potential form, *ik-e-re-ru* for *ik-e-ru* (the adult potential form of *ik-u* 'to go'). The same type of potential doubling error is found in Taatyan's data, as shown in (30b). Taatyan correctly attaches *-e* to the consonantal verb *mot-(r)u* 'to have.' However, he additionally attaches the potential morpheme *-rare*, yielding an unacceptable potential form *mot-e-rare-ta*.

---

[9] As far as we know, Shibuya (1994) is one of the pioneers who found the productive overgeneration errors found in the acquisition of Japanese potentials. Arai (2003, 2006) reports the overgeneration phenomena in causatives as well as potentials, and attempts to analyze them in a uniform way.

[10] In the case of Sumihare, he starts producing two types of overgeneration at the same age, at around the age of three.

As is the case of causatives, this type of overgeneration would reflect the stage where children still use the undifferentiated potential verbs. This is the stage where children know that a potential morpheme should be attached to make a productive potential form in the target grammar, and hence, they put a potential morpheme such as *-re* or *-rare* on the lexical potential verb.

## 5. Discussion and Conclusion

In line with Yano (2007a,b,c), we overviewed that the parallel intermediate stages in the acquisition of Japanese causatives and potentials are observed. We showed that these intermediate stages, the undergeneration and the overgeneration, can be uniformly analyzed under the VP-shell hypothesis for the acquisition of the Japanese complex predicates proposed by Murasugi and Hashimoto (2004).

First, we introduced Murasugi and Hashimoto's (2004) analysis of undergeneration, where *-(s)ase* as the *v* is not morphologically realized and the transitive/intransitive alternation errors are frequently observed. We pointed out that this analysis can be extended to potentials as well. Japanese-speaking children do not produce *-(rar)e*, and employ the unanalyzed adult form as a potential verb, and like the case of causatives, these errors are due to children's initial hypothesis that the *v* does exist in their grammar, but it is phonetically null. In fact, Murasugi and Hashimoto (2004) relate this stage to the adult English transitive/intransitive alternation, as shown in (31) (See also (11)).

(31) a. John passed the ring to Mary.

b. The ring passed to Mary.

Both the transitive *pass* and the intransitive *pass* are realized as *pass* in English. The children's alternation errors found in Japanese have, in fact, the adult English-type structure: both the *v*'s of [±cause] are realized as zero morphemes.

Second, we discussed two types of overgeneration for causatives and potentials. One type of overgeneration is "a correct (but sometimes inappropriate) stem of a verb + (unmarked) *-sase* or *-rare*."[11] Another type of overgeneration is the causative and the potential doubling: "an undifferentiated causative verb + a causative morpheme" and "an undifferentiated potential verb +a potential morpheme, " respectively. We argued that these overgenerations take place, since Japanese-speaking children, at one point of language acquisition, have difficulty in finding the "correct" adult forms of the bound morphemes for causatives and potentials. The agglutinative language learners, at an early stage of language acquisition, have difficulty in differentiating the bound morphemes from the stem of verbs as Murasugi (2007a,b,c) discusses.

[11] Precisely speaking, this type of error may not be the case of overgeneration, but rather, a morphological error, as Mamoru Saito (p.c.) and Alison Gabriele (p.c.) pointed out to us.

The analysis presented here confirms Murasugi and Hashimoto's (2004) proposal that Japanese-speaking children acquire the *v*-VP structure very early, but they seem to be confused in choosing the correct morpho-phonological realization of the *v*. This conclusion further provides a piece of supportive evidence for Null Functional Head Hypothesis proposed by Murasugi (2007a,b,c), which states that what is acquired late is not functional categories *per se* but the morpho-phonological realization of functional heads. The undergeneration and the overgeneration observed in the acquisition of Japanese complex predicates are not due to the lack of the related functional category, *v*, but due to the difficulty in realizing it with an appropriate morpheme.

## References


Arai, F. (2003) "Nihongo ni Okeru Kiin Tadousi no Syutoku Dankai [Developmental Sequence in the Acquisition of Lexical Causative Verbs -Implications of Causative Errors in Japanese-]," *Kyoto-Sangyo Daigaku Ronsyu Zinbunkagaku-Keiretu [Kyoto-Sangyo University Essays on Humanity Science]* 30, Kyoto-Sangyo University, 1-38.

Arai, F. (2006) "Nihongo ni Okeru Kanou Hyougen no Syutoku Katei [Developmental Sequence in the Acquisition of the Potential Construction in Japanese]," *Kyoto-Sangyo Daigaku Ronsyu Zinbunkagaku-Keiretu [Kyoto-Sangyo University Essays on Humanity Science]* 34, Kyoto-Sangyo University, 1-23.

Bowerman, M. (1982) "Evaluating Competing Linguistic Models with Language Acquisition Data: Implications of Developmental Errors with Causative Verbs," *Quaderni di Semantica* 3, 5-66.

Bobaljik, J. D. and S. Wurmbrand (2005) "The Domain of Agreement," *Natural Language and Linguistic Theory* 23, 809-865.

Bobaljik, J. D. and S. Wurmbrand (2007) "Complex Predicates, Aspect, and Anti-reconstruction," *Journal of East Asian Linguistics* 16, No.1, 27-42.

Chomsky, N. (1995) *The Minimalist Program*, MIT Press, Cambridge, Mass.

Fuji, C. (2006) "Two Types of Causatives in Japanese and Japanese Sign Language: A Study in Syntax and Acquisition," Master's thesis, Nanzan University.

Fuji, C., T. Hashimoto, and K. Murasugi (2008a) "VP-shell Analysis for the Acquisition of Japanese Potentials," *Nanzan Linguistics Special Issue* 3.2, 65-102.

Fuji, C., T. Hashimoto, and K. Murasugi (2008b) "A Theoretical Account for the Undergeneration and the Overgeneration in Japanese Complex Predicates," in H. Chan, E. Kapia and H. Jacob, eds., *Online Proceedings Supplement of BUCLD 32*. (http://www.bu.edu/linguistics/APPLIED/BUCLD/proc.html)

Hale, K. and S. J. Keyser (1993) "On Argument Structure and the Lexical Expression of Syntactic Relations," in K. Hale and S. J. Keyser, eds., *The View from Building 20: Essays in Linguistics in Honour of Sylvain Bromberger*, MIT Press, Cambridge, Mass., 53-109.

Hale, K. and S. J. Keyser (2002) *Prolegomena to a Theory of Argument Structure*, MIT Press, Cambridge, Mass.

Harley, H. (1995) *Subjects, Events and Licensing*, Ph.D. dissertation, MIT.

Harley, H. (2006) "On the Causative Construction," to appear in S. Miyagawa and M. Saito, eds., *The Handbook of Japanese Linguistics*, Oxford University Press, Oxford. (http://ling.auf.net/lingBuzz/000433)

Ito, K. (1990) *Kodomo no Kotoba - Syutoku to Souzou [Child Language: Acquisition and Innovation]*, Keisou Syobou, Tokyo.

Kinsui, S. (2003) "*Ra*-nuki Kotoba no Rekisiteki Kenkyu [A Historical Study of *Ra*-omission Forms]," *Gengo [Language]* Vol.32, No.4, 56-62.

Koizumi, M. (1995) *Phrase Structure in Minimalist Syntax*, Ph.D. dissertation, MIT.

Larson, R. (1988) "On the Double Object Construction," *Linguistic Inquiry* 19, 335–391.

MacWhinney, B. (2000) *The CHILDES Project: Tools for Analyzing Talk*, Lawrence Erlbaum, Mahwah, NJ.

Matsumoto, Y. (2000) "On the Crosslinguistic Parameterization of Causative Predicates: Implications from Japanese and Other Languages," in M. Butt and T. H. King, eds., *Argument Realization*, CSLI Publications, Stanford, 135-169.

Miyagawa, S. (1980) *Complex Verbs and the Lexicon*, Ph.D. dissertation, University of Arizona.

Miyagawa, S. (1984) "Blocking and Japanese Causatives," *Lingua* 64, 177-207.

Miyagawa, S. (1998) "*(S)ase* as an Elsewhere Causative and the Syntactic Nature of Words," *Journal of Japanese Linguistics* 16, 67-110.

Murasugi, K. (2007a) "Intermediate Acquisition Stages: A View from Japanese," Paper Presented at Workshop on Romance-Japanese: Comparative Syntax and Language Acquisition, University of Siena, May 5.

Murasugi, K. (2007b) "Intermediate Stages in Language Acquisition: Prism in an Agglutinative Language," Paper Presented at the 3rd Acquisition Research Workshop, Center for Linguistics, Nanzan University, June 16.

Murasugi, K. (2007c) "Null Functional Head Hypothesis for Language Acquisition," Paper Presented at International Symposium of the Cambridge - Connecticut - Hyderabad - Nanzan - Siena - Tsing Hua Consortium for Linguistics, National Tsing Hua University, December 17.

Murasugi, K. and C. Fuji (2007) "Asupekuto no Kakutoku: Ehime Hougen kara Gengo(riron) e [The Acquisition of Aspects: Theoretical Implications from Ehime Syntax]," *Academia* 82, Nanzan University, 43-93.

Murasugi, K. and T. Hashimoto (2004) "Three Pieces of Acquisition Evidence for the *v*-VP Frame," *Nanzan Linguistics* 1, 1-19.

Murasugi, K., T. Hashimoto, and C. Fuji (2007) "VP-Shell Analysis for the Acquisition of Japanese Intransitive Verbs, Transitive Verbs, and Causatives," *Linguistics* 45, Vol. 3, 615-651.

Murasugi, K., T. Hashimoto, and S. Kato (2003) "On the Acquisition of Causatives in Japanese," in A. Brugos, L. Micciulla and C. E. Smith, eds., *Online Proceedings Supplement of BUCLD 28*. (http://www.bu.edu/linguistics/APPLIED/BUCLD/supp.html)

Noji, J. (1974-1977) *Youzi no Gengoseikatu no Zittai [Substance of the Language Use in Child Age] I-IV*, Bunka Hyouron Syuppan, Tokyo.

Okubo, A. (1967) *Youzi Gengo no Hattatu [The Development of Child Language]*, Tokyodo Syuppan, Tokyo.

Saito, M. and H. Hoshi (1998) "Control in Complex Predicates," *Report of the Special Research Project for the Typological Investigation of Language and Cultures of the East and West*, University of Tsukuba, 15-46.

Shibuya, K. (1993) *Nihongo Kanou Hyougen no Syosou to Hatten [The State and the Development of Japanese Potential Construction], Osaka Daigaku Bungakubu Kiyou [Memories of Osaka University School of Letters]* 33(1), Osaka University.

Shibuya, K. (1994) "Youzi no Kanou Hyougen no Kakutoku [The Acquisition of the Potential Construction]," *Musa* 1, University of Kyoto Foreign Studies, 23-40.

Suzuki, S. (1987) "Youzi no Bunpou Nouryoku [Children's Grammatical Competence]," in S. Fukazawa, ed., *Kodomo no Gengo Sinri [Psychology of Children's Language]*, Dainihon Tosyo, Tokyo, 141-180.

Tada, H. (1992) "Nominative Objects in Japanese," *Journal of Japanese Linguistics* 14, 91-108.

Takano, Y. (2003) "Nominative Objects in Japanese Complex Predicate Constructions: A Prolepsis Analysis," *Natural Language and Linguistic Theory* 21, 779-834.

Yano, K. (2007a) "Fukugouzyutugobun no Kakutoku - Kanou Koubun o Tyuusin tosite [The Acquisition of Complex Predicates: A Case Study of the Potential Construction]," Master's thesis, Nanzan University.

Yano, K. (2007b) "The Structure of Japanese Potential *-(R)eru* Construction: A Study in Syntax, Learnability, and Acquisition," *Nanzan Gengo Kagaku [Nanzan University Linguistic Science]* 2, 261-277.

Yano, K. (2007c) "The Structure of Japanese Potential *-(R)eru* Construction: A Study in Syntax, Learnability, and Acquisition," *Nanzan Linguistics Special Issue* 3.1, 331-351.

Zenno, Y. (1985) "Paradigmatic Structure and Japanese Idioms," Master's thesis, Ohio State University.

(Received: March, 2008)

# Root Infinitives in Japanese and the Late Acquisition of Head-Movement*

**Keiko Murasugi[†‡] and Chisato Fuji[†]**
**[†]Nanzan University and [‡]University of Connecticut**

## 1. Introduction

Root Infinitives (RIs) are the non-finite verbal forms which children at around two years old use in matrix clauses, where they are not possible in their adult grammar. There have been several approaches to explain why children acquiring languages like English (Wexler 1994), Dutch (Haegeman 1995, Blom and Wijnen 2000), French (Krämer 1993, Rasetti 2003), and Russian (Bar-Shalom and Snyder 1998, Brun, Avrutin, and Babyonyshev 1999), among others, often use non-finite forms as in (1) through (3).[1]

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

(2) Peter bal pakken (2;1) (Dutch)
Peter ball get-INF 'Peter (wants to) get the ball.' (Blom and Wijnen 2000)

(3) Dormir petit bébé (1;11) (French)
sleep-INF little baby 'A little baby sleeps.' (Guasti 2004)

It is well known that there are some salient morpho-syntactic and semantic properties of RIs, as listed in (4).

(4) 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)

As (4a) states, during the RI stage, children optionally produce matrix non-finite verbs in place of finite verbs, while adults only allow non-finite verbs in embedded sentences. Observe the German examples given in (5).

(5) a. Thorstn das haben [-finite] (2;1)
T that have-INF 'Thorstn have that.'
b. Mein Hubsaube had [+finite] Tiere din (2;1)
my helicopter has animals in it 'My helicopter has animals in it.' (Wexler 1994)

As for (4c), the RI stage is considered to be some kind of disturbance of TP, which is home of both tense and EPP. As shown in (6), the subject of RIs tends to be null even in some of the non-pro-drop languages.

* We would like to thank Duk-Ho An, Adriana Belletti, Kamil Deen, Diane Lillo-Martin, Vincenzo Moscati, Keiko Ogawa, Colin Phillips, Luigi Rizzi, Ian Roberts, Thomas Roeper, Tetsuya Sano, Naoko Sawada, Bonnie Schwartz, Koji Sugisaki, William Snyder, Kensuke Takita, Ken Wexler, and in particular, the anonymous reviewers of the 33rd BUCLD, Mamoru Saito, and Tomoko Hashimoto, for discussions, comments and suggestions for this paper. Sincere thanks also go to the organizers and participants of the 33rd BUCLD conference, the series of the International Symposium (2006-present) of the Cambridge- Connecticut- Hyderabad- Nanzan- Siena-Tsinghua consortium in Linguistics, Asian GLOW in Hong Kong (Chinese University of Hong Kong, 2007), and JK18 in New York (CUNY, 2008), which are the roots of the present work. The research reported here was supported in part by Nanzan University Pache Research Grant I-A (2008) and by JSPS Grant-in-Aid to Nanzan University (#20520397, Principal Investigator: Keiko Murasugi) for the study of the acquisition of functional categories.

[1] Abbreviations used in the glosses are as follows: Acc=Accusative Case, Asp=aspect morpheme, Dat=dative Case, INF=infinitive, Mood=mood marker, Neg=negation, Nom=Nominative Case, Pres=present, Past=past.

(6) a. Hubsauber putzn (2;1) (Dutch)
helicopter clean-INF Context: The child is cleaning his toy helicopter with a toothbrush.
b. roeren (2;4)
stir-INF Context: The child's mother is cooking oatmeal. (Krämer 1993)

As (4d) states, it is also widely reported that RI verbs occur in declarative sentences, but not in *wh*-questions.

(7) a. en wat doen ze daar? (Dutch) (2;6)
and what do they there? 'And what do they do there?'
b. wie staat daar? (2;6)
who stands there? 'Who stands there?' (Haegeman 1995)

The Modal Reference Effects are also observed. RIs typically have a modal or irrealis meaning, expressing volition or request (Hoekstra and Hyams 1998, among others). Observe the example in (8) from Dutch.

(8) 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)

It has been also observed that RIs are largely restricted to eventive predicates, while finite verbs can either be eventive or stative. This is termed Eventivity Constraint (Hoekstra and Hyams 1998). These early verbs tend to receive a modal meaning with overwhelming frequency.

As (4g) states, a few researchers have observed that RIs are not found in the early grammar of such pro-drop languages as Italian, Spanish, Catalan, and languages where finiteness is expressed exclusively by number (e.g., Guasti 1994). However, some researchers have proposed that there is a RI analogue stage in those pro-drop languages. For instance, Varlokosta,Vainikka and Rohrbacher (1996) and Hyams (2005) argue that the bare perfective is a RI analogue in Greek; Kim and Phillips (1998) suggest that the RI analogue is the V with mood marker *–e* for Korean; Salustri and Hyams (2003, 2006) suggest that the RI analogue in Italian is the imperative, and a parallel proposal is made for Kuwaiti (Aljenaie 2000), American and Brazilian Sign Languages (Lillo-Martin and Quadros 2008), and Chinese (Chien 2008).

Phillips (1995) argues that RIs are not due to a deficit in syntactic structure, but they appear in fully represented finite clauses. The verb and the inflectional features are present, but since they are not syntactically joined, when morphological items are inserted to realize the syntactic items, a default verbal form is used to spell-out the verb.

Our own limited exploration of this kind of phenomena in Japanese suggests that there is a RI analogue stage in some of the East Asian languages. Murasugi, Fuji and Hashimoto (2007) and Murasugi and Fuji (2008) propose, mainly based on the analysis of natural production data of a Japanese-speaking child, Sumihare (Noji Corpus 1973-1977), that there is a RI analogue stage in Japanese acquisition, and that the very early non-finite verb is a *not* the bare form or root infinitive, but it is a full form in Japanese. The RI analogue for Sumihare is the past-tensed verbal form associated with *-ta*, which is initially (1;6-1;7) used 100% of time, and it shares the central morpho-syntactic and semantic properties of RIs summarized in (4). In this paper, we begin by investigating the nature of the very early stage of Japanese-speaking children, and argue that the RI analogue stage or the Very Early Non-Finite Verb Stage is due to the syntactic deficits and that the absence of merger of a verb with inflection.

## 2. Previous Studies

### 2.1. Phillips (1995, 1996)

Based on a comparative study of the syntactic developments of two-year-old children of V-raising languages such as Dutch, Flemish and French and a non-V-raising language, English, Phillips (1995, 1996) argues that two-year-old children's root infinitive clause contains all of the components of adults' finite clause, and what is missing is the derivational step that would combine the verb with inflection. The cause of the delay is, according to Phillips' analysis, difficulty with the process of accessing morphological knowledge, which is not an overlearned and automatic process for the child. Children's syntactic structures contain all of the appropriate inflectional features, but they are not syntactically joined when lexical items are inserted to spell-out syntactic features.

Phillips (1995) examines the relation between RIs and *wh*-questions in English to investigate whether or not the head movement is a key to RIs, since subject *wh*-questions in English do not involve verb movement while those in Dutch do. The absence of RIs in *wh*-questions is widely found, which is termed Crisma's effect. According to Haegeman (1995), for example, *wh*-questions are rare, but the main verbs used in *wh*-questions are finite, as shown in Table 1.

**Table 1: Finiteness in Declaratives and Questions in Dutch (Haegeman 1995, modified in Phillips 1995)**

| Hein 2;4-3;1 | +finite | -finite |
|---|---|---|
| All clauses | 3768 | 721 |
| *Wh*-questions | 88 | 2 |

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

Phillips (1995) shows, however, that Crisma's effect is not observed in subject *wh*-questions in English. The percentage of inflected verbs in declaratives and *wh*-questions are almost the same, as summarized in Table 2.

**Table 2: Finiteness in Declaratives and Questions in English (Phillips 1995)**

| Adam 2;3-3;1 | inflected V | uninflected V | %inflected |
|---|---|---|---|
| Declaratives | 134 | 203 | 40% |
| *Wh*-questions | 69 | 92 | 43% |

Total=498, $\chi^2$ =0.43, p=0.51

The lack of Crisma's effect in English is analyzed to be due to the absence of head movement in English subject *wh*-questions. While *wh*-questions in V2 languages, including Dutch, involve V-I(T)-C movement, English subject *wh*-questions do not involve any movement of main verbs. Hence, Phillips (1995) proposes that what is missing is the derivational step which would normally combine the verb with inflection.

In order to test this hypothesis against the null subject facts, Phillips investigates the interaction between finiteness and null subjects in Dutch and English. Krämer (1993) points out that vast majority of infinitive verbs occur in subjectless sentences (Krämer's effect). This effect, however, is not observed in English.

**Table 3: Finiteness and Subjects in Dutch (Krämer 1993, modified in Phillips 1995)**

| Thomas 2;3-2;8 | +finite | -finite |
|---|---|---|
| overt subject | 431 | 21 |
| null subject | 165 | 246 |

Total=863, $\chi^2$ =307.07, p<0.0001

**Table 4: Finiteness and Subjects in English (Phillips 1995)**

| Adam 2;3-3;0 | +finite | -finite |
|---|---|---|
| overt subject | 79 | 195 |
| null subject | 34 | 47 |

Total=355, $\chi^2$ =4.98, p=0.026

An English-speaking child, Adam, used null subjects both with finite and infinitive verbs, and Phillips points out that there was even a tendency to use overt subjects more with infinitive verbs. Given that Nominative Case licensing has nothing to do with head movement in English, Phillips concludes that RI clauses are "adult clauses minus one step of head movement" and that the cause of delay in merging a verb with inflection is in the difficulty with the process of accessing morphological knowledge. As for adults, accessing inflection paradigms is an automatic process after having been overlearned, and bears minimal or zero cost. As for young children, however, the process is not yet automatic, and as a result, the cost of accessing a given form may outweigh the cost of failing to realize it.

It is well known that head movement itself is, in fact, acquired very early. For example, as we showed in (5), which is repeated below, German-speaking children even at age two know that an infinite verb stays at the end of the clause, whereas a verb, if it is finite, moves to C, which is the second position.

(5) a. Thorstn das haben [-finite] (2;1)
T that have-INF 'Thorstn have that.'
b. Mein Hubsaube had [+finite] Tiere din (2;1)
my helicopter has animals in it 'My helicopter has animals in it.' (Wexler 1994)

The fact that children use finite verbs in the second position as in (5b) indicates that V-C movement is already acquired in the stage in question. The parallel argument is found in French. In adult French, finite verbs are raised from V to I, past the negation *pas*, while infinitives remain below the negation in the VP. (See Déprez and Pierce 1993). French-speaking children, even before age two, produce the adult-like word order of V-Neg as in (9b).

(9) a. Pas manger la purpée (1;9) b. Elle roupe pas (1;11)
not eat-INF the doll 'The doll never eats.' it rolls not 'It never rolls.'

In addition, as we briefly argued on the basis of (4), given the fact that the semantic/syntactic commonalities, such as MRE and Eventivity Constraints, are observed across languages at the stage in question, Phillips' proposal that the RIs are not syntactic deficit but reflect children's difficulty with the process of accessing morphological knowledge, could be too

strong. However, we argue in this paper that Phillip's insight can still be maintained: There is a delay of merger of a verb with inflection in Japanese, an agglutinating language, and at the RI analogue stage, the inflectional features (including T (I)) are not successfully merged with the verb.

### 2.2. Previous Studies on Japanese Root Infinitives

Before we go into the discussion of children's very early syntactic structures, this section reviews representative accounts of "root infinitives" in Japanese.

The collective force of the acquisition data from the null-subject languages is to put a nail in the coffin of any hope that the RI analogue stage could be found in Japanese. Sano (1995, 1999) makes a detailed longitudinal study with three Japanese-speaking children, Toshi (2;3-2;8), Ken (2;8-2;10) and Masanori (2;4), to see if non-finite forms would be produced in a main clause. The verb forms he examines are exemplified in (10): *Renyookei –i* (preverbal) in (10a), *Mizenkei –a* (irrealis) in (10b), and Conjunctive *-te* (participial) in (10c).

(10) a. Taro-ga kore ni hair -i ta -i (koto)
-Nom this to enter-(Adverbial) want-Pres (fact)
'Taro wants to enter into this.'
b. Taro-ga kore ni hair -a na -i (koto)
-Nom this to enter-(Irrealis) Neg-Pres (fact)
'Taro does not enter into this.'
c. Taro-ga kore ni hait -te, Jiro-ga are ni hair -u
-Nom this to enter-(Conjunctive) -Nom that to enter-Pres
'(While) Taro enters into this, Jiro enters into that.'

As shown in Table 5, the Preverbal *–i*, the Irrealis *–a* and the Conjunctive *-te* were not produced as a main verb by those subjects, while these forms were produced in the non-root context, i.e., under finite auxiliary predicates.

**Table 5: Inflection of Main Verbs in Affirmative Declarative Root Clause (Sano 1999)**

| | Non-past *-(r)u* | Past-*ta* | 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 the data analysis, Sano (1995, 1999) concludes that children at two, who would be in the RI stage in other languages, did not produce non-finite verbal forms, and hence, there is no RI stage found in child Japanese.

Kato, Sato, Takeda, Miyoshi, Sakai and Koizumi (2003) support Sano's conclusion. Pointing out that bare verb stems without tense morphemes are not allowed in Japanese, they predict that either the present- or the past-tensed form should be a RI analogue. They analyze the corpus data of two Japanese-speaking children, Ryo (2;0-3;0) and Tai (2;0-2;9), and see if either of those form is overused. Their results are given in Table 6 and Table 7.

**Table 6: Number of Past- or Present-tensed Verbal Form in Ryo's Corpus (Kato et al. 2003)**

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

**Table 7: Number of Past- or Present-tensed Verbal Form in Tai's Corpus (Kato et al. 2003)**

| | Past-tensed verb forms | Present-tensed 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-tensed forms in the appropriate contexts. Hence, Kato et al. (2003) conclude that a RI stage is not found in child Japanese.

## 3. The Root Infinitive Analogues in Japanese

Contrary to the previous studies, Murasugi, Fuji and Hashimoto (2007) and Murasugi and Fuji (2008) propose that there is a RI analogue stage in Japanese.[2] Based on the analysis of naturalistic data of a Japanese-speaking child,

[2] This analysis does not contradict the descriptive findings by Sano (1995) and Kato et al. (2003). Rather, our studies are consistent with their results because the erroneous non-finite verb forms are not found with the two-year-olds, but with younger children.

Sumihare (Noji Corpus), they argue that (i) there is a Very Early Non-Finite Verb Stage in Japanese, (ii) the form in question is the past-tensed form V–*ta*, (iii) the stage is found much earlier than the European languages, i.e., even at one year-old, and (iv) the form is initially (around 1;6-1;7) used 100% of the time for full range of environments. In these works, they discuss in detail the parallel nature of the stage with other languages summarized in (4).[3]

In this paper, in addition to the claim above, we present a piece of supporting evidence for Phillips' (1995) insight that at the RI Stage, the merger of the verb with inflection is not available. More specifically, we argue that merger of the head is acquired step by step as summarized in (11).

(11) a. Non-Finite Verb (RI analogue) Stage (1;6-1;11): No merger of the verb with inflection available
b. Post-Non-Finite Verb Stage (1;11-2;1): the merger of the verb and the inflection available
c. Onset of Finite Verb Stage (2;1- ): Two- (or more-) head mergers available

We argue that there is a stage in Japanese acquisition where a non-finite verb form is used in adult-like as well as non-adult-like meaning, and this non-finite verb is produced by a child as young as one year old, when the merger of the verb with inflection is not yet acquired.

### 3.1. The Very Early Non-Finite Verb Stage (The stage of no merger of V-T)

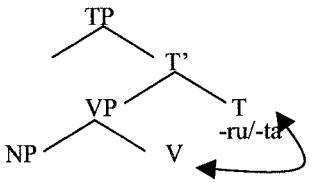
Japanese is an agglutinating language with multiple head movements inside the verb projection. (See Koizumi 1995.)[4] In adult Japanese, the bare verb stems cannot appear without tense or aspect morphemes, as shown in (12) and (13).

(12) a. *tabe- 'to eat'
b. *suwar- 'to sit'

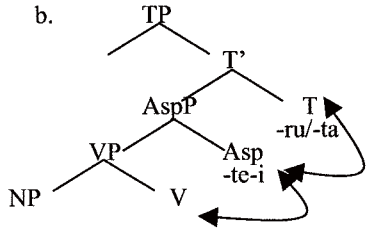
(13) a. tabe-ru/-ta
eat -Pres/Past '(I) eat/ate.'
b. tabe-te-i -ru/-ta
eat -Asp-Pres/Past '(I) have/had eaten.' / 'I am/was eating.'
c. tabe-te
eat -Imperative(Preverbal form) '(Please) eat.'
d. tabe-ta -i
eat -want-Pres '(I) want to eat.'

The verb stem *tabe-* (to eat) is followed by the present-/past-tense morphemes in (13a), and by the aspectual morpheme *-te-i* to indicate both the ongoing process and the result state of the event in (13b).[5] For request or imperative, the morpheme *-te* attaches to the verb as in (13c), while for volition, *-ta-i* is attached to the verb as in (13d). The structures of V with tense and aspectual morphemes are represented in (14). The merger of V and T is required to derive a tensed sentence as in (14a). For an aspectual sentence, as in (14b), two-step head merger (V-Asp-T) is required.

(14) a.




b.




The complex conjugations, however, are not produced at the very early stage of Japanese acquisition. Below we argue that there is a stage where a uniform verbal form is employed for non-adult meanings, which we term the Very Early Non-Finite Verb Stage, and the inflectional features (including T (I)) are not successfully merged with the verb.

Sumihare started using the past-tensed form, *-ta* form, referring to the perfective event in the same way as adults in the mid one-year old, as shown in (15) (Murasugi, Fuji and Hashimoto 2007, Murasugi and Fuji 2008).

(15) a. Buu ki **-ta** (1;5)
onomatopoeia come-Past 'A car has come.'
b. Tabe-**ta** (1;6)
eat -Past '(I) ate (up) (an apple).'
c. Oti-**ta** (1;7)
fall-Past '(It) has fallen.'
d. Keityan yuu-**ta** (=it-ta) (1;8)
say-Past '(She) said *Keityan*.'

---

[3] Noji corpus is chosen for this study because it contains detailed contexts for the child's utterances, which helps us to detect the intended meanings. Noji's comments as the observer and as a linguist are also very helpful for making generalizations.

[4] If we adopt the PF merge analysis (Bošković 2003, among others), our findings will be interpreted as a limitation in the number of elements that can be merged in the child's derivation, and RI analogues arise because of the failure to merge the verb with inflection.

[5] The abbreviated V-*teru*/-*teta* forms as in (i) are used as colloquial expressions in adult Japanese.
(i) tabe-te -ru /-ta
eat -Asp-Pres/-Past '(I) have/had eaten.' / '(I) am/was eating.'

Sumihare, however, at around 1;6 through 1;11, used V-*ta* form in different ways from adults. At this stage, the Modal Reference Effects are observed: The V-*ta* form semantically denotes the meaning of volition (desire) or request.[6]

(16) a. Atti. Atti. Atti i -ta (1;6) (irrealis/volition) (adult form: *ik-u*, or *ik-e*)
there there there go-Past 'I want to go there / Go there.'
b. Tii si -ta (1;7) (irrealis/volition) (adult form: *si-ta-i*)
onomatopoeia (pee) do-Past 'I want to pee.'
c. Baba pai -ta (1;8) (request) (adult form: *pai-si-te* )
mud onomatopeia (throw away) -Past 'Please throw (this) away.'
(Murasugi, Fuji and Hashimoto 2007, Murasugi and Fuji 2008)

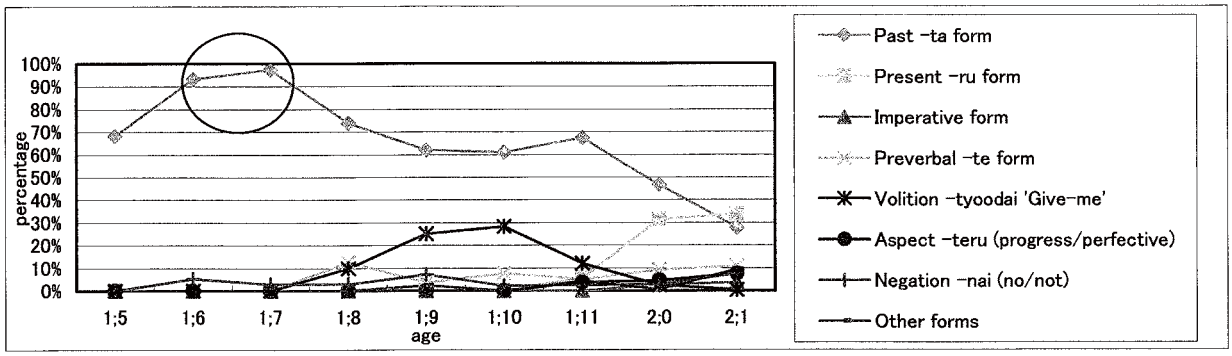
The context for (16a) is the following: Sumihare's father (Noji, the observer) went out for a walk with Sumihare on the back. Noji tried to go back home, but Sumihare pointed to a different direction and produced "*atti* (there)" twice. Sumihare got frustrated and said, "*atti i-ta* (there go-Past)" angrily again. Noji notes on this example: *I-ta* means *ik-u* (go-Pres) while Sumihare uttered *i-ta*, because Sumihare could not say *ik-u* (Noji 1973-1977 I: 195). Noji also writes important comments for (16b), which convinces us of the Modal Reference Effects at the early stage of Japanese acquisition: Sumihare used *tii-si-ta* in a volition context when he wanted to pee. As for (16c), Sumihare produced *pai-ta*, attaching *-ta* on the onomatopoeia *pai* (to throw away), in order to ask his mother to remove mud from a potato.

The examples in (17) indicate cases where *–ta* is used for the result state, progressive and the irrealis meaning.

(17) a. Baba tui -ta (1;6) (result state) (adult form: *tui-te-i-ru*)
thread stick-Past 'The thread is on the finger.'
b. Sii si -ta (1;7) (progressive) (adult form: *sikko si-te-i-ru*)
onomatopoeia (pee) do-Past '(She) is peeing.'
c. Meen -ta (1;7) (irrealis) (adult form: *meen to i-u*)
"meen"(onomatopoeia)-Past '(Mommy would say,) "Meen".' (Murasugi, Fuji and Hashimoto 2007, Murasugi and Fuji 2008)

In (17a), Sumihare found a thread, *baba* (dirty), on his finger, and intended to inform his mother of this. Here, the aspectual morpheme *–te-i-ru* should be attached to the verb stem *-tui*, but Sumihare used *tui-ta*. Likewise, in (17b), Sumihare employed V-*ta* form instead of V-*te-i-ru* form for the progressive event where one of his friends was peeing. In (17c), Sumihare's mother asked him what she would say if Sumihare wetted his underpants (with pee), and he intended to reply, "She would say, 'Meen'." Here, the present-tensed form *i-u* (to say) or the future-tensed form *-i-u-daroo* would be used in adult grammar, but V-*ta* form was used instead (Murasugi, Fuji and Hashimoto 2007, Murasugi and Fuji 2008). The percentage of V-*ta* form decreases with age; at 1;6-1;7, he predominantly used the V-*ta* form almost 100% of the time.

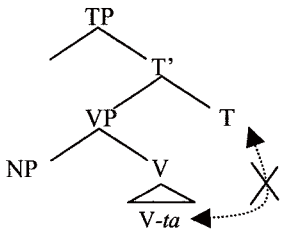
**Figure 1: The Overall Proportion of Verbal Forms in Sumihare's Corpus at Each Stage**




The fact that *-ta* forms, but not the other verbal forms, such as imperatives and present-tensed forms, are consistently used to denote different meanings, would suggest that the verbal conjugation, i.e., the merger of V and inflection, is not yet available then, and this is the stage where a default form is picked up by a child for the verbal element. If this is the case, then, the whole V-*ta* form would be base-generated as an unanalyzed rote form as illustrated in (18). This stage is characterized as the one where the verbs are not merged with the head of TP.

[6] Suppose V-*ta* form is the reduced form of V-*tai* (volition). Then, we would expect that the V-*tai* form is acquired soon after the RI analogue stage. However, in order to convey the meaning of volition, *tyoodai* form is used productively from 1;8, and we have to wait for the adult usage of V-*tai* to be observed until around 2;6. Hence, V-*ta* form would not be the mere reduction of *–i* of V-*tai*.

(18)




At 1;8, modal meaning came to be frequently realized with *tyoodai.*[7] Instead of adult *si-te kudasai* (V-*te* (please-do/give-me)), which requires more than three steps of head movement, an independent verbal element *tyoodai* (please-do/give-me), without being merged, came to be productively used to convey the meaning of volition or request.

(19) a. Tii tyoodai (1;9)
pee give-me 'Please help me to pee.'

b. Nainai tyoodai (1;10)
no-no give-me 'Please put (this) away.'

In (19a) and (19b), *tyoodai* follows the onomatopoeia *tii* (pee) and *nainai* (no-no). As shown in Figure 1 above, the rate of the non-finite past-tensed form decreases in number in accordance with the increase of *tyoodai* (please-do/give-me).[8]

The increase of volition with *tyoodai* form at the later stage of the Non-Finite Verb Stage would parallel the Modal Reference Effects in Dutch-type languages, where root infinitives receive a modal meaning with overwhelming frequency at the later stage.[9] As the merger inside the verbal projection is not possible, the child would employ the non-merging strategy, or the attachment of *tyoodai*, at this Non-Finite Verb stage, in order to verbalize the speaker's volition.

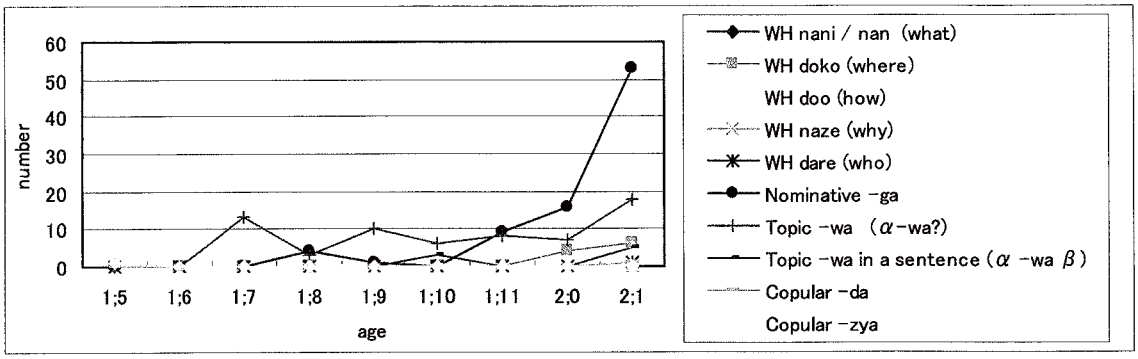
That the child is still in the Non-Finite Verb Stage when volition came to be expressed by *tyoodai* is confirmed by the fact that erroneous V-*ta* forms are still used for perfective and progressive instead of the aspectual form V-*te-i-ru*.

(20) a. Nenne-ta -noo (1;9) (result state) (adult form: *si-te-i-ru*)
sleep -Past-Mood '(I)'m in the bed (with Daddy).' Context: Sumihare (the speaker) is in bed with his father.
b. Buu maimai -ta (1;10) (progressive) (adult form: *si-te-i-ru*)
plane go around-Past 'A plane is going round.' (Murasugi, Fuji and Hashimoto 2007, Murasugi and Fuji 2008)

The appropriate form to refer to the result state in (20a) would be *si-te-i-ru*, but Sumihare employed the *-ta* form instead, in order to inform his mother of the situation. In (20b), *–ta,* instead of *–te-i-ru,* is attached to the onomatopoeia, *maimai* (onomatopoeia, meaning go around), to convey the meaning of an ongoing event, "An airplane is going around."

Then, how about the presence of *wh*-questions at this stage? Interestingly, Crisma's effect is observed in Japanese, while *wh*-questions in Japanese may not require main verbs to move. Like European languages, Tense- and C-related elements (e.g., Complementizer and *wh*-phrases) are not found with the non-finite *–ta* forms, as Figure 2 shows.[10]

**Figure 2: Frequency of C-, T- and D-related Elements in Sumihare's Corpus**




[7] *Tyoodai* is the colloquial abbreviated mood auxiliary that is equivalent to *kudasai* (please-do/give-me). It is used as the main verb taking a noun complement as in (i) and as an auxiliary associated with a verb as in (ii).

(i) Ringo -(o) tyoodai
an apple-Acc give me 'Give me an apple.'

(ii) Hayaku si -te tyoodai
quickly do-preverbal please-give/please-do 'Do (it) quickly.'

[8] Murasugi and Hashimoto (2004) argue that *v*-VP structure is acquired very early and *v* is initially realized as *tiyu/tita/tite* (do/did/doing). If we apply their analysis to this case, *tyoodai* produced in this stage may be the head of *v*P.

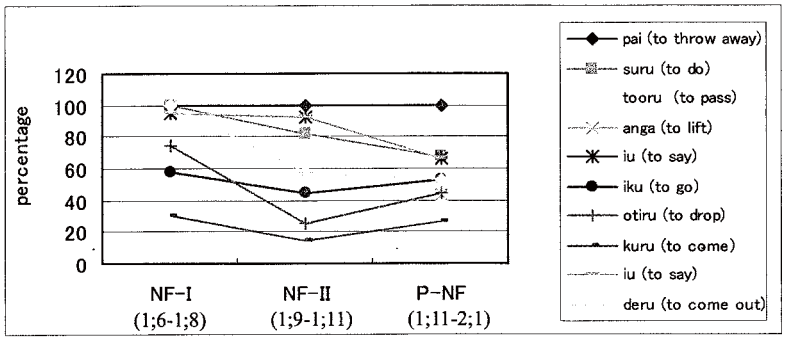
[9] We thank Kamil Deen for pointing out this possibility at the conference site.

[10] The topic marker *–wa* is produced at a very early stage, only in the form of NP-*wa*, without being associated with verbal predicates.

These data would indicate that the RI phenomena are not merely due to the performance deficits of children. Rather, as Hyams (2005) discusses, MoodP is active during the Non-Finite Verb (RI analogue) Stage, while the AspectP and TP are still underspecified and the head movement inside the verbal projection is still unavailable. The evidence for the underspecification of T is also found in the absence of other T (or I) elements at the stage in question. Nominative Case marker *–ga* and the finite *be* (*da/zya*, the copula) are not observed either then in Sumihare's corpus, which would reconfirm the possibility that the stage is due to the deficits in (the realization of the feature of) T (or I).

Then, how about Krämer's effect? Like other languages, Sumihare initially produced null subjects frequently with a lot of verbs, though the rate of null subjects sometimes decreases, and sometimes not, depending on the verbs.[11] As shown in Figure 3[12], the percentage of null subjects of such speaker-oriented verbs as *pai* (to throw away) or *suru* (to do), where the subject tends to be Ego, stays high even after the inflections (conjugations) appear after two. On the other hand, the subject (topic) conveying the new information with eventive verbs such as *oti-ru* (to drop) and *ku-ru* (to come) does NOT tend to be null. This is different from the findings reported in the studies of non-null-subject languages, though it may not be surprising given that Japanese is a discourse-pro language.[13]

**Figure 3: Proportion of Null Subjects of Each Verb in Sumihare's Corpus**




It has been observed that children speaking the agglutinative languages, e.g., Tamil (Raghavendra and Laurence 1989) and Turkish (Aksu-Koç and Slobin 1985), acquire the verb inflections at a very early stage. As Murasugi, Fuji and Hashimoto (2007) and Murasugi and Fuji (2008) discuss, the early emergence of RI analogues in such languages as Japanese, Korean (Kim and Phillips 1998), Italian (Salustri and Hyams 2003, 2006), American and Brazilian Sign Languages (Lillo-Martin and Quadros 2008), Chinese (Chien 2008), Arabic (Aljenaie 2000), and Greek (Varlokosta et al. 1996, Hyams 2005), will be explained by a morphological parameter, Stem Parameter proposed by Hyams (1986), which is responsible for the well-formedness of verbal bare stems in a language. (See also Aljenaie 2000, Hyams 2008.) According to this hypothesis, English, for example, takes a value [+inflected stem], as verbs can surface as bare stems. On the other hand, in such languages as Japanese, the parameter takes the opposite value, [-inflected 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.

### 3.2. The Post-Non-Finite Verb Stage (The head merger of V-Asp/V-T)

The merger of a verb and inflection came to be available at around 1;11, when Sumihare started producing the "correct" non-past form V-*ru* as in (21) in the proper contexts (Murasugi, Fuji and Hashimoto 2007, Murasugi and Fuji 2008).

(21) a. Ik-**u** -yoo (1;11) (present)
go-Pre-Mood '(I)'ll go to (Tiiko's house).'

b. Okku a -**ru** -yo (1;11) (present)
medicine be-Pres-Mood 'Here is the medicine.'

Sumihare also started producing the abbreviated aspectual form *-teru* at around the age of 1;11. As shown in (22a) and (22b), the form is used for result state and progressive. The frequency of each verbal form is illustrated in Figure 4.

(22) a. Wanwan tyan si -**teru** (1;11) (result state)
dog sit do-Asp 'A dog is sitting (here).'

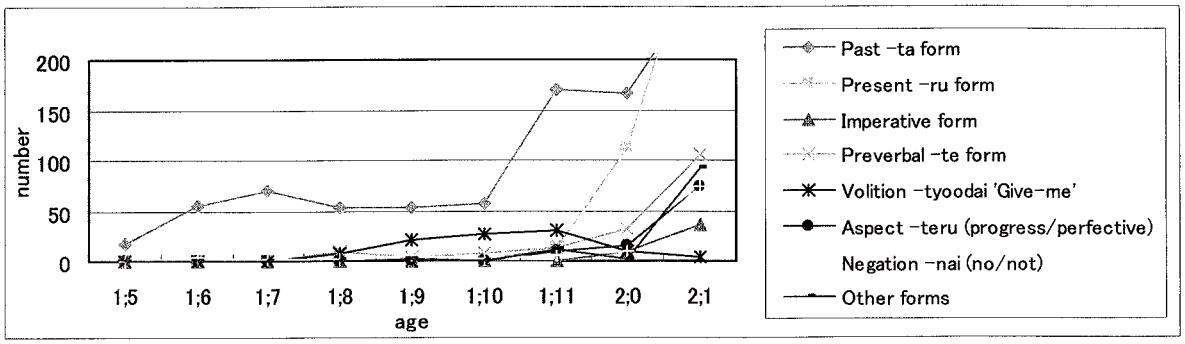
b. Buranko ti -**teru** (2;0) (progressive)
swing do-Asp '(A scarecrow) is swinging.'

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

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

[13] Kim and Phillips (1998) argue that the overuse of the default mood-inflection '*-e*' in the earliest speech of a Korean child parallels RIs in other languages, and report that there is no correlation between the RI analogue form and the number of null subjects produced at the stage. See Murasugi and Fuji (2008) for the arguments of the parallelism in RI analogue stages in Japanese and Korean.

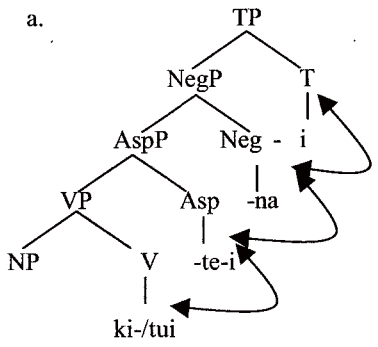
**Figure 4: Frequency of Verbal Forms in Sumihare's Corpus**



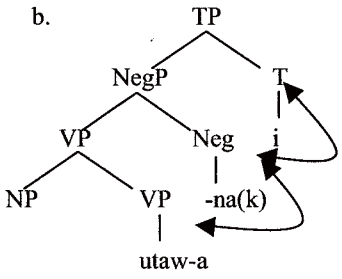

*-Ta* form is dominant in 1;6-1;11 (i.e., the Non-Finite Verb (RI analogue) Stage) in number; the non-past *-ru* form, the aspectual *-teru* and preverbal *–te* form started to appear after 1;11. The other inflections began to be produced after around 2;0. These facts would indicate that at least the merger of a verb with inflection is available at around 1;11.

The evidence for the unavailability of two-step head movement at this stage is elicited from the analysis of the negative sentences Sumihare produced. In adult Japanese, the negative marker *-nai* (not) is a verbal predicate which itself carries finite tense (Sano 2000), and two-step head movement (V-Neg-T) is involved. To form the adult negative predicates *ki-te-na-i* or *utawa-na-i*, two- (or more) step head movement (or merge in the PF merge analysis) is required:

(23) a.




b.




However, the child at around 1;11-2;2, consistently produced the erroneous negative sentences such as (24) and (25), without making the adult-like application of head movement (or multiple application of merge in the PF merge analysis).

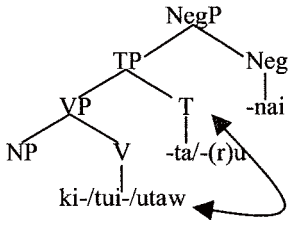
(24) a. Tinbun ki **-ta** -nai yo (1;11) (adult form: *ki-te(i)-nai*)
newspaper come-Past-Neg Mood 'The newspaper has not come yet.'
b. MOT: Sekken-ga te -ni tui -te-i -ru kara arai nasai
soap -Nom hand -Dad put-Asp-Pres as wash Imperative
'Wash your hand. Some suds stick on your hand.'
SUM: Tui-**ta** nai (1;11) (adult form: *tui-te(i)-nai*)
put-Past Neg 'No, they don't.'

(25) Utaw-**u** -nai (2:0) (adult form: *utaw-a-nai*)
sing -Pres-Neg '(Mommy) doesn't sing.'

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 (24a) and *tui-ta* (dropped) in (24b). In (25), *-nai* even attaches to the full present-tensed verb *utaw-(r)u*.[14] This would suggest that the structure of (24) and (25) in child Japanese would be something like (26), which is different from the ones in adult grammar (23a, b) in that NegP is located outside of TP.

[14] There are a few correct negative sentences as in (ia-b). We consider those as the unanalyzed "negative forms" stored as chunk (rote) in the child lexicon, because we have to wait the past tense form *–na-k-atta* productively produced with different verbs until 2;2.
(i) a. Mie-nai ne (1;11) b. Nakanaka ko -nai ne (2;1)
see -Neg Mood '(We) cannot see (that).' not nearly come-Neg Mood '(The train) does not come, does it?'

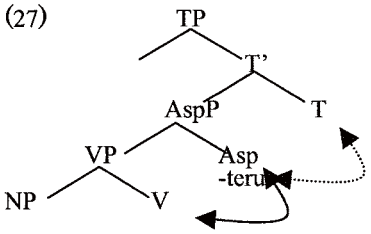
(26)




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.

Further support for the unavailability of two head movement inside the verbal projection at around 1;11-2;0 is found in the morphology of aspect. Although the V-*teru* form is "correctly" used to refer the result state in (22a) and the progressive in (22b), the form in this stage is always produced as *-teru* but never as *–te-i-ru*. As the past-tensed form *-te(i)-ta* is not produced either, the *-teru* form, produced then, would be an abbreviated aspectual chunk as in (27).

(27)




At the Post-Non-Finite Verb Stage, other aspectual or mood forms, such as V-*te-simat-ta* (V-Asp (perfective)-Past), V-*ta-i* (V-*v* (volition)-Pres), which require two- (or more-) step head movement, are not produced either.

### 3.3. The Onset of Finite Verb Stage (Two-(or more-) step head merger)

Two-step head movement (or the second application of merge in the PF merge analysis) seems to be acquired at around the age of 2;1, when the adult-like verbal conjugation explosively increased. The V-*te-i-ru* form (28), V-*te-ta* form (29), and V-*toru* form (30), the V-*te-i-ru* form in Sumihare's dialect (Setouchi Dialect[15]), appeared in this stage.

(28) a. Hasit-**te-i -ru** inu (2;2) (progressive)
run -Asp-Pres dog 'A running dog.'

b. Ki **-te-i -ru** yo (2;2) (perfect)
come-Asp-Pres Mood '(It) has come.'

(29) Atti -ni tomat-**te -ta** (2;2) (result state)
there-at stop -Asp -Past '(The bus) had stopped there.'

(30) a. Oki **-toru** yo (2;2) (perfect)
awake-Asp-Pres Mood '(The baby) is awake.'

b. Keetyan-ga nai-**toru** (2;3) (progressive)
-Nom cry-Asp-Pres 'Ms. Keiko is crying.'

The emergence of these forms leads us to conjecture that *-teru* form is no longer an abbreviated form. Thus, the derivation containing two-step head movement (or the second application of merge in the PF merge analysis) should be accessible.

It is also after 2;1 when Sumihare started to produce the past-tensed negative form, V-*na-katta*, as in (31).

(31) Naka-na -katta (2;2)
cry -Neg-Past '(I) did not cry.'

The fact that Sumihare came to distinguish the past-tensed form *–na-katta* from the present-tensed form *-na-i*, would suggest that the tense morphemes *-i*/*-katta* are differentiated from the verb stem and the negative marker.

Although it is not clear when children move from two-step to three-step movement (or learn the multiple applications of merge in the PF merge analysis), it is only around the age of 2;3 when the multiply merged forms come to be observed:

(32) Kazi-ni nat-te -na -katta (2;4)
fire -Dat be-Asp -Neg-Past '(It) has not caused a fire.'

---

[15] Setouchi Dialect is a dialect spoken around Ehime in the Western Japan. V-*toru* in this dialect corresponds to V-*te-i-ru* in Tokyo dialect. They are both ambiguous between progressive interpretation and perfective interpretation (Aono 2007), as shown in (i).

(i) Happa-ga oti -toru
leaf -Nom fall -Asp-Pres 'A leaf is falling.' / 'A leaf has fallen.'

The verbal form *nat-te-na-katta* is derived via three- (or more-) head movement as represented in (23a). Sumihare, at this stage, came to be able to produce the complex, merged negative form *V-te–na-katta.*

Furthermore, the complex verbs with at least three heads begin to be joined at around 2;3.[16]

(33) a. Kumot-te ki -ta ne (2;4)
cloudy-Preverbal come-Past Mood
'It's getting cloudy.'

b. Mata ame hut -te ki -ta yo (2;4)
again rain fall-Preverbal come-Past Mood
'It started raining again.'

To sum, there are at least three stages in acquiring head movement (or merge in the PF merge analysis): (i) No merger of the verbs with inflection (Non-Finite Verb Stage or RI analogue stage)[17], (ii) the merger of a verb with inflection available (Post-Non-Finite Verb Stage), and (iii) Two- or more-head mergers available, or the onset of Finite Verb Stage.

## 4. Conclusion

In this paper, we investigated the correlation between the Root Infinitive analogue (Non-Finite Verb) stage in Japanese and the acquisition of head movement. We overviewed Murasugi, Fuji and Hashimoto (2007) and Murasugi and Fuji (2008) proposing that (i) there is a RI analogue stage, or Very Early Non-Finite Verb Stage in Japanese, (ii) the data analysis of Sumihare (Noji Corpus) indicates that the form is associated with the past-tensed form *–ta*, (iii) the stage is found much earlier than the European languages, i.e., even in one year-old, (iv) the form is initially (at around 1;6-1;7) used 100% of the time for past, perfectives, imperatives, and irrealis meanings, and (v) the stage basically exhibits the parallel nature with other languages summarized in (4) (except for (4a,c,g)). The T (or I) and AspectP are underspecified in this stage, while MoodP is active during the Non-Finite Verb Stage, à la Hyams (2005). Our study here would suggest that RI analogues found in Japanese are not merely due to deficits in child performance, contra Phillips (1995, 1996).

However, during the RI analogue stage, the merger of a verb with inflection is not available. At the post RI analogue (Post-Non-Finite Verb) stage, at around 1;11, only one-step head movement, in Phillip's term, is available, and the merger of a verb and T(I) is acquired. Then, a child uses the abbreviated aspectual or negative forms without making multiple step head movement. It is only after the RI analogue stage at around age 2;1, when the multiple heads are joined. The step-by-step acquisition of head-mergers would reflect the limitation of processing, as Phillips (1995) states.

Our analyses suggest that in the [-inflected stem] languages under the Stem Parameter proposed by Hyams (1986), the so called root infinitives would be realized as the default full verbal form: the past-tensed *-Ta* form as for Sumihare, Japanese, the mood marker *-e* in Korean (Kim and Phillips 1998), the imperatives for some languages like Italian (Salustri and Hyams 2003, 2006), American and Brazilian Sign Languages (Lillo-Martin and Quadros 2008), Chinese (Chien 2008), Kuwaiti (Aljenaie 2000), and bare perfectives in Greek (Varlokosta,Vainikka and Rohrbacher 1996, Hyams 2005).

The RIs (RI analogues) would be the children's first step to the system of the verb, and they, as Rizzi (2000) states, exhibit whatever unmarked nonfinite form the language possesses. Children, even at age one or two, pick up a default verb in the target language, e.g., root infinitives, bare forms, or full forms, depending on the language type, and use them in a commonly abstract way. The children's common and voluntary "errors" found across languages would constitute counter-evidence against the claim that the children just imitate what they learned purely based on the adult usage.

## Selected References

Aksu-Koç, A. and D. I. Slobin (1985) "The Acquisition of Turkish." In D. I. Slobin (ed.), *The Crosslinguistic Study of Language Acquisition* Vol 1. *The Data*. Erlbaum, Hillsdale, NJ.

---

[16] The erroneous use of V-*ta* instead of V-*ru* or V-*t-ei-ru* remains even after the age of 2;2 until around 2;6. An example is given in (i).

(i) Kaatyan buranko timawa -na (=simawana). Ame-ga hut-ta yo (2;4) (progressive) (Adult form: *hut-te-i-ru*)
Mommy swing clean up Mood rain -Nom fall-Past Mood
'Mommy, we must put the swing back. It's raining.' Context: Since it was raining, Sumihare asked Mommy to clean up the swing.

There are at least two possible accounts for the fact that this type of error continues to be produced even after head merger inside the verbal projection is available. One is, in line with Phillips, to consider that these are due to the performance errors. The other is to consider those as the "Optional Infinitives" although the errors are not many in number. See Murasugi and Watanabe (2008).

[17] Table 8 compares the numbers of sentences involving head movement in V-Neg produced at the Non-Finite Verb Stage and Finite Verb Stage found in the corpus of Sumihare.

Table 8: The Correlation between RI analogues and Head Movement with V-Neg Sentences in Sumihare's Corpus

| | no head movement | head movement |
|---|---|---|
| Non-Finite Verb Stage (1;6-1;10) | 17 | 0 |
| Finite Verb Stage (1;11-2;6) | 0 | 139 |

Total=156, $\chi^2$ =156.21, p=0.0004 <0.001

We classify the negative forms such as *i-nai* (be-Neg) or *ika-n* (go-Neg) into the unanalyzed forms when they are used in a limited way (in number and variety). On the other hand, as for those V-Neg forms productively produced with other verbs productively, we classify them into the analyzed (differentiated) forms. The results shown in Table 8 would suggest that no sentence involving head movement inside the verbal projection is produced during Non-Finite Verb Stage, and the results are consistent with Phillips' (1995) insight that there is no head movement in RI clauses.

Aljenaie, K. (2000) "The Emergence of Tense and Agreement in Kuwaiti Children Speaking Arabic." In R. Ingham and P. Kerswill (eds.), *Reading Working Paper in Linguistics* Vol.4, 1-24.

Aono, M. (2007) "Derivational Theta-marking and a Uniform Analysis of the Progressive/Perfective *-te iru.*" *Nanzan Linguistics Special Issue* 1 vol.1, Nanzan University, Nagoya, 1-21.

Bar-Shalom, E. and W. Snyder (1998) "The Optional Infinitives in Russian and its Implications for the Pro-Drop Debate." In S. Franks and M. Lindseth (eds.), *Formal Approaches to Slavic Linguistics 5: The Indiana Meeting*, Michigan Slavic Publications, Ann Arbor. 8-47.

Blom, E. and F. Wijnen (2000) "How Dutch Children's Root Infinitives Become Modal." *BUCLD 24*, 128-139.

Bošković, Ž. (2003) "On PF Merger: Stylistic Fronting and Object Shift," *Gengo Kenkyu* 123, 5-45.

Brown, R. (1973) *A First Language*, Harvard University Press, Cambridge, MA.

Brun, D., S. Avrutin, and M. Babyonyshev (1999) "Aspect and its Temporal Interpretation during the Optional Infinitive Stage in Russian." *BUCLD 23*, 120-131.

Chien, M. (2008) "Is there a Root Infinitive or Root Infinitive Analogue Stage in Early Mandarin?" Qualifying Exam Paper, National Tsing Hua University, Taiwan.

Crisma, P. (1992) "On the Acquisition of Wh-questions in French." *Geneva Generative Papers 1992*, 115–122.

Deen, K.U. (2002) *The Omission of Inflection Prefixes in the Acquisition of Nairobi Swahili.* Ph.D. Dissertation, UCLA.

Déprez V. and A. Pierce (1993) "A Cross-linguistic Study of Negation and Functional Projections in Early Grammar." *Linguistic Inquiry* 24, 25-67.

Guasti, M. T. (1993/1994) "Verb Syntax in Italian Child Grammar: Finite and Non-finite Forms." *Language Acquisition* 3, 1-40.

Guasti, M. T. (2002) *Language Acquisition: The Growth of Grammar.* MIT Press, Cambridge, MA.

Haegeman, L. (1995) "Root Infinitives, Tense, and Truncated Structures in Dutch." *Language Acquisition* 4, 205-255.

Hoekstra, T. and N. Hyams (1998) "Aspects of Root Infinitives." *Lingua* 106, 91-112.

Huang, J. (1987) "Remarks on Empty Categories in Chinese." *Linguistics Inquiry* 18, 321-337.

Hyams, N. (1986) *Language Acquisition and the Theory of Parameters.* D. Reidel, Dordrecht.

Hyams, N. (2005) "Child Non-Finite Clauses and the Mood-Aspect Connection: Evidence from Child Greek." In P. Kempchinsky and R. Slabakova (eds.), *The Syntax, Semantics and Acquisition of Aspect*, Dordrecht, Kluwer, 293-316.

Hyams, N. (2008) "The Acquisition of Inflection: A Parameter-Setting Approach." *Language Acquisition* 15, 192-209.

Kato, S., T. Sato, Y. Takeda, R. Miyoshi, Y. Sakai, and M. Koizumi (2003) " 'Root Infinitives': Nihongo kara no Kensyo [Investigation from Japanese]." *Tohoku Daigaku Gengogaku Ronsyu [Tohoku University Linguistic Journal]* 12, 113-127.

Kim, M. and C. Phillips (1998) "Complex Verb Constructions in Child Korean: Overt Markers of Covert Functional Structure." *BUCLD 22,* 430-441.

Koizumi, M. (1995) *Phrase Structure in Minimalist Syntax.* Ph.D.Dissertation, MIT.

Krämer, I. (1993) "The Licensing of Subjects in Early Child Language." In C. Phillips (ed.), *Papers on Case & Agreement I, MIT Working Papers in Linguistics* 19, 197–212.

Lillo-Martin, D. and R. Quadros (2008) "Two in One: Evidence for Imperatives as the Analogue to RIs from ASL and LSB." Presentation at BUCLD 33, November 1st.

Murasugi, K. and C. Fuji (2008) "Root Infinitives: The Parallel Routes the Japanese- and Korean- speaking Children Step in." Presentation at Japanese/Korean Linguistics Conference 18, November 13th.

Murasugi, K., C. Fuji, and T. Hashimoto (2007) "What Acquired Later in an Agglutinative language." Presentation at the Asian Glow VI. Chinese University of Hong Kong, December 27th.

Murasugi, K. and T. Hashimoto (2004) "Three Pieces of Acquisition Evidence for the *v*-VP Frame." *Nanzan Linguistics* 1, Nanzan University, Nagoya, 1-19.

Murasugi, K. and E. Watanabe (2008) "Case Errors in Child Japanese and the Implications for the Syntactic Theory." Presentation at the 3rd GALANA, University of Connecticut, September 6th.

Noji, J. (1973-1977) *Youzi no Gengoseikatu no Zittai [The Language Use in Child Age] I-IV.* Bunka Hyoron Syuppan, Tokyo.

Otani, K. and J. Whitman (1991) "V-Raising and VP-Ellipsis." *Linguistics Inquiry* 22, 345-358.

Phillips, C. (1995) "Syntax at Age Two: Cross-Linguistic Differences." *MITWPL* 26, 325-382.

Phillips, C. (1996) "Root Infinitives are Finite." *BUCLD* 20, 588-599.

Raghavendra, P. and L. Leonard (1989) "The Acquisition of Agglutinating Languages: Converging Evidence from Tamil." *Journal of Child Language* 16, 313-322.

Rasetti, L. (2003) *Optional Categories in Early French Syntax: A Developmental Study of Root Infinitives and Null Arguments.* Ph.D. Dissertation, University of Genève.

Rizzi, L. (2000) *Comparative Syntax and Language Acquisition.* Routledge, London.

Salustri, M. and N. Hyams (2003) "Is There an Analogue to the RI Stage in the Null Subject Language?" *BUCLD* 27, 692-703.

Salustri, M. and N. Hyams (2006) "Looking for the Universal Core of the RI stage." In V. Torrens and L. Escobar (eds.), *The Acquisition of Syntax in Romance Languages*, John Benjamins, Amsterdam, 159-182.

Sano, T. (1995) *Roots in Language Acquisition: A Comparative Study of Japanese and European Languages*, Ph.D. Dissertation, UCLA.

Sano, T. and N. Hyams (1994) "Agreement, Finiteness, and the Development of Null Arguments." *NELS* 24, 544-558.

Sano, T. (1999) "Verbal Inflection in the Acquisition of Japanese." (http://coe-sun.kuis.ac.jp/public/paper/outside/sano2.pdf)

Varlokosta, S., A. Vainikka and B. Rohrbacher (1996) "Root Infinitives without Infinitives." *BUCLD* 20, 816–827.

Wexler, K. (1994) "Optional Infinitives, Head Movement, and Economy of Derivation." In N. Hornstein and D. Lightfoot (eds.), *Verb Movement*, Cambridge University Press, Cambridge, 305-350.

# Root Infinitives: The Parallel Routes the Japanese- and Korean- speaking Children Step in*

KEIKO MURASUGI
*Nanzan University and University of Connecticut*

CHISATO FUJI
*Nanzan University*

## 1. Introduction.

In Japanese, bare stems cannot stand alone without tense or aspect morphemes, as shown in (1) and (2).[1]

* We would like to thank Duk-Ho An, Hiroshi Aoyagi, Marcel den Dikken, Michiya Kawai, Tomoko Hashimoto, William McClure, Shigeru Miyagawa, Mamoru Saito, Bonnie Schwartz, Peter Sells, and Kensuke Takita for comments and suggestions for this paper. Sincere thanks go to the organizers, participants and the anonymous reviewers of JK 18, Asian GLOW 6 (CUHK, 2007), BU 33 (2008), and the series of the International Symposium (2006-present) of the Cambridge-Connecticut-Hyderabad-Nanzan-Siena-Tsinghua consortium in Linguistics. The research presented here was supported in part by Nanzan University Pache Research Grant I-A and by JSPS Grant-in-Aid to Nanzan University (#20520397).

1 Abbreviations used in this paper are as follows: Acc=accusative Case, Asp=aspect morpheme, Dat=dative Case, Decl=declarative, Imper=imperative, INF=infinitive, Mood=mood marker, Neg=negation, Nom=nominative Case, Pres=present, Past=past, RI=root infinitive, VEN Stage=Very Early Non-finite (Verb) Stage.

(1) a. *tabe- 'to eat' b. *suwar- 'to sit'

(2) a. tabe-ru/-ta
eat -Pres/-Past
'(I) eat/ate.'

b. tabe-te-i-ru/-ta
eat-Asp-Pres/-Past
'(I) have/had eaten.'/'(I) am/was eating.'

c. tabe-te
eat-Imperative (Preverbal)
'(Please) eat.'

d. tabe-ta-i
eat-want-Pres
'(I) want to eat.'

The verb stem *tabe-* (to eat) is followed by the present-/past-tense morphemes as in (2a), and it is followed by the aspectual morpheme *-te-i* to indicate either the ongoing process or the result state of the event as in (2b).[2] For request or imperative, the morpheme *–(t)e* forms are employed as in (2c), while for volition, *-(t)a-i* forms are employed as in (2d).

The complex conjugations, however, are not produced at the very early stage of Japanese acquisition. This paper argues that there is a Root Infinitive analogue (Very Early Non-finite (Verb)=VEN) stage in Japanese acquisition, which parallels Korean RI analogue stage proposed by Kim and Phillips (1998). Although Japanese and Korean RI analogues share central properties with RIs in other languages such as Dutch and English, they have some specific properties attributed to the lack of agreement, and the agglutinating and discourse-pro drop properties of Japanese and Korean.

## 2. The RI Analogue in Korean (Kim and Phillips 1998)

Kim and Phillips (1998) argue, based on the longitudinal study of a Korean-speaking child, Jiyoung (2;2-2;7), that the overuse of default mood inflection *-e* corresponds to RIs in other languages. In Korean, like Japanese, bare verb stems without being supported by morphemes are impossible.

(3) a.*mek- 'eat' b. *anc- 'sit'

(4) a. mek-e
eat-Declarative 'I eat.'

b. mek-ca
eat-Propositive 'Let's eat.'

In Adult Korean, the mood marker *–e* functions as a default mood marker (or speech style particle).

Table 1: Mood Morphemes in Adult Korean

| Declarativee | Interrogative | Imperative | Propositive |
|---|---|---|---|
| *-ta* | *-ni* | *-ia* | *-ca* |
| | *-e* | | |

[2] The abbreviated V-*teru/-teta* forms are used as colloquial expressions in Adult Japanese.
(i) Tabe-te-ru/-ta
eat-Asp-Pres/-Past '(I) have/had eaten.' / '(I) am/was eating.'

It freely alternates with more specific mood markers, as shown in Table 1.[3]

According to Kim and Phillips (1998), while Jiyoung used the default mood marker *-e* in imperative, declarative, and interrogative sentences in the adult way at around the age of two in (5), she also used the form in some ungrammatical contexts at 2;2 through 2;3, as shown in (6).

(5) a. mul cwu-**e** (2yrs) b. i tak-**e** (2yrs)
water give-Imper 'give water' teeth brush-Decl '(I'm) brushing the teeth.'
c. enni ka-**(a)** (2yrs)
sister go-Question 'Did sister go?'

(6) a.*mek-**e** emma (2 yrs) (adult :*mek-ca* (propositive))
eat -Declarative mommy 'Let's eat, Mommy.'
b.*ayki pwo-**a** (2 yrs) (adult: *pwo-l-kkeya* (presumptive))
baby look-Declarative 'Baby (I) will look at it.'

The default mood marker *-e* is overused in the context where the specific propositive marker *-ca* and the presumptive marker *-l-kkeya* should be used in the Adult Grammar, as in (6a) and (6b), respectively.

Kim and Phillips (1998) analyze the V-*e* form as a RI analogue, pointing out that the form has some RI-like properties. First, the V-*e* form is not marked for tense at the very early stage.[4] In Adult Korean, the tense morpheme *–ess* is obligatorily attached to refer to the completive events. Compare (7a) with the present tense form in (4a), repeated in (7b). Jiyoung, however, did not use past-tense morphemes even in obligatory contexts from 2;2 through 2;3. An example is given in (8).

(7) a. mek-ess-ta (past) b. mek-e (present)
eat-Past-Decl 'I ate.' eat -Decl 'I eat.'

(8) enni ka φ -(a) (2 yrs)
sister go-(Past)-(Question) (Intended meaning: Did sister go?)

Second, the V-*e*-form does not co-occur with a nominative Case marker.[5] In Adult Korean canonical word-order (SOV), nominative Case markers can be dropped in discourse-licensing context, while they cannot in non-canonical order.

---

[3]According to Lee (1994) cited by Kim and Phillips (1998), the ratio of *–e* and other mood morphemes used in the informal discourse in Adult Korean, was 58:42.

[4] RIs are considered to be some kind of disturbance of TP, which is home of both tense and EPP (See Schütze and Wexler (1996), among others).

5 It has been analyzed that T or C-related elements do not co-occur with RIs (Rizzi 1993/1994, Wexler 1994). Here we assume that the nominative Case is assigned by T(ense) and hence, it is one of the T-related elements.

(9) emma-(ka) pap-ul mek-ess-e (SOV)
mom-Nom meal-Acc eat -Past-Decl 'Mommy ate the meal.'

(10) pap-ul emma-*(ka) mek-ess-e (OVS)
meal-Acc mom-Nom eat-Past-Decl 'Mommy ate the meal.'

However, Jiyoung dropped nominative Case markers even in the context where they are obligatory. According to Kim and Phillips (1998), her mother used the nominative Case marker 50% of the time in the discourse-licensing context and 96% in the grammatically requested context; Jiyoung used it only 1% in the discourse-licensing context and 0% in the grammatically requested context.

While the optionality is one of the well-known properties of RIs[6], Jiyoung used the default mood marker *–e* 100% of the time in the full range of environments. All the verbs Jiyoung produced at the age of 2;2 and 2;3 were associated with the mood marker *-e*, and after the age of 2;4 other mood markers, such as *-ta* and *-ca*, started to appear.

While many studies show that there is a strong correlation between RI forms and null subjects (Krämer 1993, Poeppel and Wexler 1993),[7] Kim and Phillips find no correlation between the use of default verb forms and null subjects. Jiyoung, at the age of 2;2, used null subjects almost 100% of the time, and the rate declines gradually over time both with the V-*e*-form and with the non-V-*e*- form. Thus, Kim and Phillips (1998) propose that the overuse of the default mood marker *–e* corresponds to RIs in other languages.

## 3. The Very Early Non-Finite Verb Stage in Japanese

Child grammar reflects the common properties that Adult Korean and Japanese share. There is also an RI analogue (Very Early Non-finite (Verb)) stage in Japanese (See also Murasugi, Fuji and Hashimoto 2007, Murasugi and Fuji 2008). In this section, based on the corpus analysis of Sumihare

---

6 While children produce erroneous non-finite verbs in matrix clause as in (ia) during the RI stage, they also produce adult-like finite verbs as in (ib) (Wexler 1994).

(i) a. Thorstn das haben[-finite] (2;1) b. Mein hubsauber had[+finite] tiere din(2;1)
T that have-INF my helicopter has animals in it
'Thorstn have that.' 'My helicopter has animals in it.'

7 The subject of RIs tends to be null even in some of the non-pro-drop languages. Some of the examples are drawn from Dutch in (ia-b).

(i) a. Hubsauber putzn (2;1) (Dutch)
helicopter clean-INF Context: The child is cleaning his toy helicopter with a toothbrush.
b. roeren (2;4)
stir-INF Context: The child's mother is cooking oatmeal. (Krämer 1993)

(Noji 1973-1977)[8], we argue that (i) there is a VEN Stage in Japanese, which corresponds to RI stage in other languages[9], (ii) the form in question is the past-tense form V-*ta* as for Sumihare, (iii) the stage is found earlier than in European languages, i.e., even at one year of age. We also argue that there are some properties specific to Japanese/Korean-type languages: The non-finite form is initially (at around 1;6-1;7) used 100% of the time in a full range of environments, and there is no correlation between null subjects and non-finite verb forms, as Kim and Phillips (1998) find for Korean.

Sumihare started using the past-tense form, V-*ta*, referring to the perfective event in the same way as adults at the age of one and a half.

(11) a. Buu ki-**ta** (1;5)
onomatopoeia come-Past 'A car came.'

b. Tabe-**ta** (1;6)
eat-Past '(I) ate (up) (an apple).'

c. Oti-**ta** (1;7)
fall-Past '(It) has fallen.'

d. Keityn yuu-**ta** (=it-ta) (1;8)
say-Past '(She)said, *Keityan*.'

Sumihare, however, at around 1;6 through 1;11, used V-*ta* form in different ways from adults as well. At this stage, the V-*ta* form semantically denotes the meaning of volition (desire) or request.[10]

(12) a. Atti. Atti. Atti i-**ta** (1;6) (irrealis/volition) (adult form: *ik-u*, or *ik-e*)
there there there go-Past 'I want to go there / Go there.'

b. Tii si-**ta** (1;7) (irrealis/volition) (adult form: *si-ta-i*)
onomatopoeia (pee) do-Past 'I want to pee.'

c. Baba pai-**ta** (1;8) (request) (adult form: *pai-si-te* )
mud onomatopoeia (throw away) -Past 'Please throw (this) away.'

Noji (the observer) describes that *i-ta* in (12a)[11] means *ik-u* (go-Pres) while Sumihare uttered *i-ta*, because Sumihare could not say *ik-u* (Noji 1973-1977 I: 195). Noji also writes important comments for (12b), which convinces us

---

8 Noji corpus (also available in CHILDES (MacWhinney 2000)) was chosen for this study as it contains detailed contexts for the child's utterances, which helps us to detect the intended meanings. Noji's comments as the observer are also very helpful for making generalizations.

9 Our results are consistent with Sano (1995) and Kato et al. (2003) with respect that the erroneous non-finite verbs are not found with the two-year-old Japanese-speaking children.

10 RI typically has a modal or irrealis meaning, expressing volition or request (Hoekstra and Hyams 1998, among others). The infinitive verb expresses the speaker's volition as in (i).

(i) vrachtwagen emmer doen (2;4) (Dutch)
truck bucket do-INF Context: The speaker wants the observer to put the truck in the bucket.

11 The context for (12a) is the following: Sumihare's father (Noji, the observer) went out for a walk with Sumihare on the back. Noji tried to go back home, but Sumihare pointed to a different direction and produced "*atti* (there)" twice. Sumihare got frustrated and said, "*atti i-ta* (there go-Past)" angrily again.

of the Modal Reference Effects at the early stage of Japanese acquisition: Sumihare used *tii-si-ta* in a volition context when he wanted to pee. As for (12c), Sumihare produced *pai-ta*, attaching *-ta* on the onomatopoeia *pai* (to throw away), in order to ask his mother to remove mud from a potato.

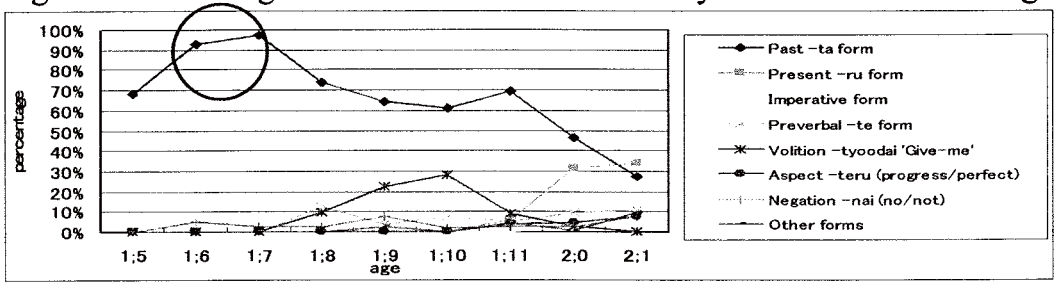
Moreover, the examples listed in (13) indicate the cases where *–ta* is used for the result state, progressive and the irrealis meaning.

(13) a. Baba tui-**ta** (1;6) (result state) (adult form: *tui-te-i-ru*)
threads tick-Past 'The thread is on the finger.'
b. Sii si-**ta** (1;7) (progressive) (adult form: *sikko si-te-i-ru*)
onomatopoeia (pee) do-Past '(She) is peeing.'
c. Meen-**ta** (1;7) (irrealis) (adult form: *meen to i-u*)
"meen"(onomatopoeia)-Past '(Mommy would say,) "Meen".'

In (13a), Sumihare intended to tell his mother that he found a thread, *baba* (dirty), on his finger. Here, the aspectual morpheme *–te-i-ru* should be attached to the verb stem *-tui*, but he used *tui-ta*. Likewise, in (13b), V-*ta* form instead of V-*te-i-ru* form was used for the progressive event. In (13c), Sumihare's mother asked him what she would say if Sumihare wetted his underpants (with pee) His intended meaning was "She would say, 'Meen'" Here, the present-tensed form *i-u* (to say) or the future-tense form *-i-u-daroo* are the appropriate form, but V-*ta* form was used instead.

As Figure 1 shows, Sumihare predominantly used the V-*ta* form almost 100% of the time at 1;6-1;7, and the rate of V-*ta* form decreases with age.

Figure 1: Percentage of Verbal Forms Produced by Sumihare at Each Stage




Note here that the modals are expressed with other forms as well. The mood morpheme *–naa,* probably the head of Mood Phrase, is attached to the V-*ta* form as well as to nominals to refer Sumihare's volition in (14a) and (14b).

(14) a. Pan-naa (1;5) b. Sii si-ta-naa (1;7)
bread-Mood 'I want a piece of bread.' pee do-Past-Mood '(I) want to pee.'

After 1;8, modal meaning comes to be frequently produced with *tyoodai*,[12] as exemplified in (15a) and (15b).

(15) a. Tii tyoodai (1;9) b. Nainai tyoodai (1;10)
pee give-me 'Please help me to pee.' put away give-me 'Please put this away.'

As Figure 1 shows, the rate of the past-tense form decreases in accordance with the increase of the rate of *tyoodai* (please do/give me) at the later VEN Stage, which resembles the Modal Reference Effects, where RIs receive a modal meaning with overwhelming frequency at the later stage of RIs.[13]

Importantly, even at the time when volition is expressed by *tyoodai*, the perfective and progressive meanings still remain being expressed with V-*ta*, instead of the aspectual form V-*te-i-ru*, as shown in (16).

(16) a. Nenne-**ta**-noo (1;9) (result state) (adult form: *si-te-i-ru*)
sleep -Past-Mood '(I)'m in the bed (with Daddy).'
Context: Sumihare (the speaker) is in bed with his father.
b. Buu maimai-**ta** (1;10) (progressive) (adult form: *si-te-i-ru*)
airplane go around-Past 'An airplane is going round.'

The appropriate adult form for the result state in (16a) and the progressive in (16b) would be *si-te-i-ru*, but Sumihare employed the *-ta* form instead. The fact that several types of aspects are kept being realized with verb-*ta* when the modal meanings realize in different forms would indicate that MoodP is active but the AspectP is still underspecified at the VEN Stage.

Thus, as for Sumihare's case, the VEN Stage starts at 1;6 with the increase of *-ta* form, and VEN Stage ends at around 1;11, when non-past *-ru* and *-teru* forms started to appear.

(17) a. Ik-u -yoo (1;11) (present) b. Okku a-ru -yo (1;11) (present)
go-Pre-Mood medicine be-Pres-Mood
'(I)'ll go to (Tiiko's house).' 'Here is the medicine.'

(18) a. Wanwan tyan si-teru (1;11) (result state)
dog sit do-State 'A dog is sitting (here).'
b. Buranko ti-teru (2;0) (progressive)
swing do-Progressive '(A scarecrow) is swinging.'

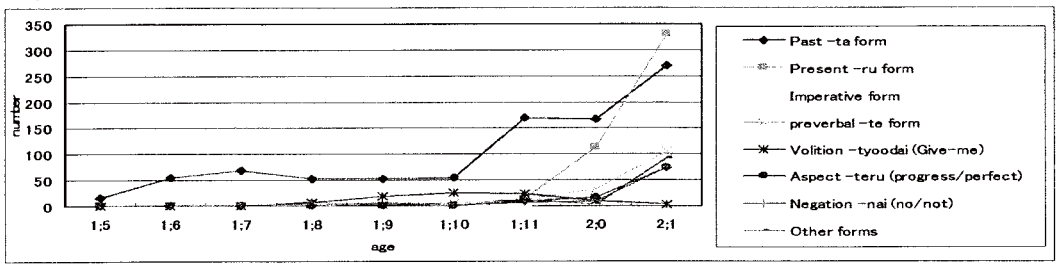
---

[12] *Tyoodai* is the colloquial abbreviated mood auxiliary that is equivalent to *kudasai* (please-do/give-me). It is used as the main verb taking a noun complement as in (i) and as an auxiliary associated with a verb as in (ii).
(i) Ringo-(o) tyoodai (ii)Hayaku si-te tyoodai
an apple-Acc give me'Give me an apple.' quicklydo-preverbal please-do 'Do (it) quickly.'

[13] We thank Kamil Deen for pointing out this possibility at the BU Conference (2008).

The V-*teru* form is "correctly" used to refer the result state in (18a) and the progressive in (18b). The number of each verbal form is shown in Figure 2.

Figure 2: Frequency of Verbal Forms in Sumihare's Corpus




Evidence for the VEN Stage is also found in the development of onomatopoeic expressions in Japanese. Sumihare used onomatopoeic expressions such as *pai* (discard), *sii/tii* (pee), *uun* (bowel movement), *maimai* (go around), *nainai* (put away) with the verbal meaning, and they exhibit exactly the parallel developmental pattern with the other verbs. Unlike adult usage, the onomatopoeic verbs are also followed by *-ta* at the VEN Stage. The parallel developmental pattern is found between, for example, *sii/tii* (pee) and *nainai* (put away) as in (19) and (20).

(19) a. Sii (1;4) (volition)
pee '(I want to ) pee.'

b. Sii si-**ta** /Tii -**ta** (1;5) (past/perfective)
pee do-Past /pee-Past '(I) peed.'

c. Sii si-**ta**-naa (1;6) (volition)
pee do-Past-Mood 'I want to pee.'

d. Tii tyoodai (1;9) (volition)
pee give me 'I want to pee.'

e. Tii si-te nai (2;1) (negation)
pee do-Preverbal Neg '(I) have not peed.'

(20) a. Nainai (1;6) (Volition)
put away
'(I'll) put (this car) away.'

b. Nainai si-**ta** (1;6)(past/perfective)
put away do-Past
'(I) put (my socks) away.'

c. Nainai xxx -na (1;8) (volition)
put away -Mood
'(Daddy), put (xxx, or the bedding) away.'

d. Buuwa Nainai tyoodai(1;10) (volition)
light put away give me
'Take the bulb and put it away.'

e. Ohasi nainai tyu-u (=su-ru)-no (2;0) (present/future)
chopstick put away do-Pres-Mood '(I'll) put the chopsticks away.'

f. Kaatyan ooton (=ohuton) nainai ti-te (2;1) (imperative)
mommy bedding put away do-Imperative 'Mommy, put the bedding away.'

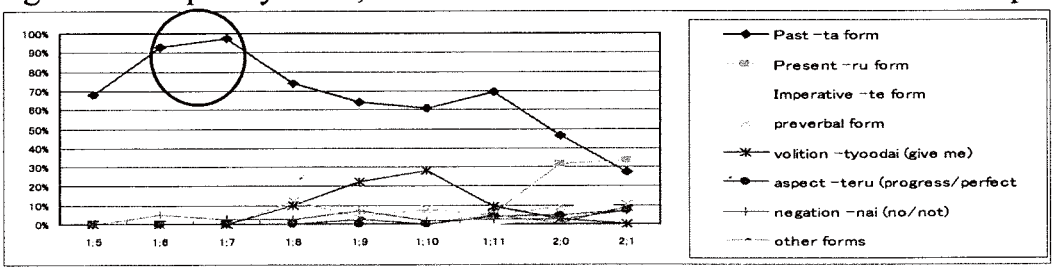
As in (19a)/(20a), the bare onomatopoeia is produced without any tense or mood morpheme. At around 1;6, the past tense morpheme *-ta* is attached to the onomatopoeia as in (19b)/(20b). The form is sometimes used for volition and request, and sometimes for past or perfective events (Cf. (12)). (19c)/(20c) indicate that the mood morpheme *-na* also appeared at around

1;6. Then, *tyoodai* (give me/please do) for volition and request appeared at around 1;9, as shown in (19d)/(20d). Finally, the other tense or aspectual forms start to be produced after 1;11 as shown in (19e)/(20e-f).

Sumihare did not produce the onomatopoeia + *-ta* forms by merely copying his parents' forms, since our corpus analysis shows that they never produced such forms.[14] Rather, he innovatively employed onomatopoeia associated with *-ta*, using them as the verbal forms at the VEN Stage.[15]

Just like European languages, at the VEN Stage, Tense and C-related elements are not found with the non-finite *–ta* forms either.

Figure 3: Frequency of C-, T- and D-related Elements in Sumihare's Corpus




Nominative Case marker *–ga* and finite *be* (*da/zya*) are not observed then either, which would indicate that Tense is underspecified at this stage.[16]

The evidence for the underspecification of Tense at the VEN Stage is also found in the lack of tense marking in adjectives produced at that time. Japanese adjectives in Adult Grammar carry finiteness, as illustrated in (21).

(21) a. tiisa-i /-katta
small-Pres/-Past

b. samu-i/-katta
cold-Pres/-Past

---

[14] Sumihare's parents did use onomatopoetic expressions followed by *suru/sita/site* (do/did/doing), as in (i). However, onomatopoeia+*-ta* form was never produced by them.

(i) a. Nenne su-ru?
sleep do-Pres 'Shall we sleep?'

b. Yoo yoo sikko si-ta-ne
a lot pee do-Past-Mood '(You) peed a lot.'

[15] Note here that the onomatopoeia produced at the VEN Stage is not always associated with *–ta*. For example, *anga* (to step on), *sikko* (to pee), *unko* (to move one's bowels), *dakko* (to hold) and *ombu* (to carry on one's back) are produced then, but they are never followed by *–ta*.

(i) a. Anga (1;8)
step on '(I) want to step on (the table).'

b. Sikko-naa (1;7)
pee-Mood '(I) want to pee.'

c. Tootyan dakko tyoodai (1;11)
daddy hold give me 'Please hold me.'

d. Ombu-na (1;7)
carry-Mood 'Carry me on your back.'

Mamoru Saito (p.c.) suggested to us that children, even at/before the VEN Stage at age of one, would have already acquired the basic phonological system of Adult Japanese, which prohibits verbs ending with the round vowels, *–a*, *-o*, or *–u* to be associated with *–ta*. Our corpus analysis shows that the round-vowel-ending onomatopoeic expressions exemplified in (i) are followed by *-sita* (did), instead of the simple *–ta*, to create verbal form in child Japanese.

[16] The topic marker *–wa* is produced at a very early stage, only in the form of NP-*wa*, without being associated with verbal predicates.

At the VEN Stage, where non-finite V–*ta* form is used, only present-tensed adjectives are produced. Observe an example of *oisii* (be delicious).

(22) a. oiti-i (=oisii) (1;7) b. oiti-katta (=oisikatta) (2;0)
delicious-Pres '(This) is delicious.' delicious-Past'(This) was delicious.'

Sumihare started producing adjectives at around 1;7 only with the present-tensed *-i* form, while the past-tense forms are produced after 2;0. The parallel pattern is found with other adjectives, as shown in Table 2.

Table 2: The Development of Present/Past-tense Form of Adjectives

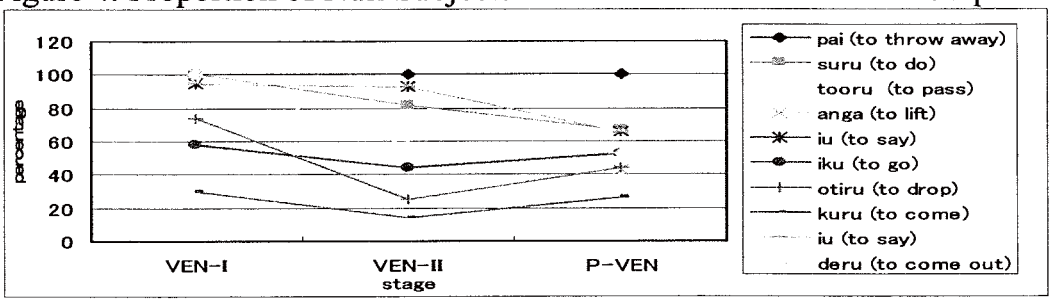
| Adjectives | Present-tense Form | Age | Past-tense Form | Age |
|---|---|---|---|---|
| oisii 'delicious' | oisi-i | 1;7 | oisi-katta | 2;0 |
| tumetai 'cold' | tumeta-i | 1;7 | tumeta-katta | 2;0 |
| atui 'hot' | atu-i | 1;7 | atu-katta | 2;3 |
| omoi 'heavy' | omo-i | 1;8 | omo-katta | 2;2 |
| kurai 'dark' | kura-i | 1;8 | kura-katta | 2;7 |
| itai 'painful' | ita-i | 1;9 | ita-katta | 2;0 |

The lack of past-tense adjectives in Japanese parallels the Korean case in (8), where the past-tense morpheme is not found at the RI analogue stage.

As for null subjects, there seems to be no correlation between the subjects and the non-finite verb forms. This property parallels Korean null subjects, but differs from the findings reported in the studies of RIs in non-null-subject languages.

As shown in Figure 4, Sumihare initially produced null subjects frequently, but the frequency differs depending on the verbs.

Figure 4: Proportion of Null Subjects of Each Verb in Sumihare's Corpus[17]




The percentage of null subjects of such speaker-oriented verbs as *pai* (to throw away) or *suru* (to do), where the subject tends to be Ego, stays high even after the inflections appear after P-VEN at the age of two. In contrast, the subject (topic) conveying the new information with eventive verbs such

[17] P-VEN stands for Post-VEN Stage. VEN-I is the stage where V-*ta* form is used almost 100% of the time; VEN-II is the stage where V–*ta* forms and *tyoodai* (for modal) are used.

as *oti-ru* (to drop) and *ku-ru* (to come) does not tend to be null even at VEN-I stage.

Although the non-finite verb forms of Japanese children are found only in matrix clauses, the non-finite verb forms are, in fact, 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. (Teramura 1984, Abe 1993, Kinsui 1994, Ogihara 2004, Miyagawa 2009, Murasugi 2009, among others)[18]

Two conjuncts which are unspecified regarding tense are conjoined by the verbal conjunct with *-ta* forms in (23), and *–ta* forms can be used with irrealis meaning as well, as shown in (24) as well.

(23) a. Tabe-**ta** ri non-**da** ri su-ru/-ta
eat- drink- do-Pres/-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 is/was troublesome (of you) to go back and forth.'

(24) 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 'If I built a house, I would build a tiny one.'

Furthermore, RIs in Italian can be used for imperatives in special context (Rizzi 1993/ 1994), and it is true, in fact, for Japanese. As shown in (26b), *kaetta kaetta!* (went went) can be imperative in special context as well.

(25) Partire immediatamente!
go immediately (Rizzi 1993/1994)

(26) a. Sassa to kaet-**ta** ! kaet-**ta** !
immediately go back- go back-
'Go back (somewhere) immediately.'
b. Sassato kaer-e
immediately go back-Imperative
'Go back immediately."

---

[18] Cinque (2004), for Salentino and Serbo-Croatian, and Michiya Kawai (p.c.) for Japanese, also argue the cases where the sentence-ending inflection is marked for the morphological requirement on the tenseless sentences. According to Michiya Kawai (p.c.), the verbs *oyogu* in *Oyogu-no-wa muzukasii* (It is difficult to swim.) and *-da* in *Yamada-wa Sato-o hannin-da to omou* (Yamada consider Taro to be a criminal.), for example, are tenseless, and sentence-ending forms are marked for the morphological requirement. If this line of argument is taken, we expect the other forms than *–ta* forms as well, as RI analogues in Japanese acquisition: Each child would pick up the default sentence-ending form available.

*-Ta* form would be non-finite as well as past-tense in Adult Japanese. And children, even at age of one, naturally and voluntarily pick up the non-finite form as the default verbal form of their language.

## 5. Conclusion

There is a RI analogue stage, or VEN (Very Early Non-Finite (Verb)) Stage in Japanese and Korean, although the non-finite forms are not infinitives (See also Poeppel 1996, Coene, Taelman, Avram and Gillis 2005). The RI analogues share the properties of RIs with respect that tense is underspecified, and the typical T features (e.g., nominative Case marker) and C-related items are not observed with the early non-finite verbs, yet the Mood is active.[19] The volition or imperative is realized with a mood particle *-na /V-ta/Tyoodai* forms in Japanese, and *–e* in Korean.

The data analysis of Sumihare (Noji Corpus) indicates that the form at the VEN Stage in Japanese is associated with the past-tense form *–ta*, and they are found in one-year-old child. The non-finite form is initially (at around 1;6-1;7) used 100% of the time for past, perfectives, imperatives, and irrealis meanings. The correlation between null subjects and the form is not found. We argued that these peculiar properties are due to the non-agreeing, agglutinating and pro-drop properties in Adult Japanese and Korean.

## Selected References


Coene, M. H. Taelman, L. Avram and S. Gillis. 2005. Early Bare Infinitives are Universally Non-Finite...but Not Always Infinitives! Paper presented at 5th International Council for Central and East European Studies, July 26th, Berlin.

Hoekstra, T. and N. Hyams. 1998. Aspects of Root Infinitives. *Lingua* 106: 91-112.

Kim, M. and C. Phillips. 1998. Complex Verb Constructions in Child Korean: Overt Markers of Covert Functional Structure. *BUCLD 22*: 430-441.

Murasugi, K. and C. Fuji. 2008. Root Infinitives in Japanese and the Late Acquisition of Head-Movement. Paper Presented at BUCLD 33, November 1st.

Murasugi, K., C. Fuji, and T. Hashimoto. 2007. What Acquired Later in an Agglutinative language. Paper presented at the Asian Glow VI. Chinese University of Hong Kong, December 27th.

Noji, J. 1973-1977. *Youzi no Gengoseikatu no Zittai [The Language Use in Child Age] I-IV*. Tokyo: Bunka Hyoron Syuppan.

Rizzi, L. 1993/1994. Some Notes on Linguistic Theory and Language Development: The Case of Root Infinitives. *Language Acquisition* 3: 371-393.

Wexler, K. 1994. Optional Infinitives, Head Movement, and Economy of Derivation. *Verb Movement,* eds. N. Hornstein and D. Lightfoot 305-350. Cambridge: Cambridge University Press.


19 The findings here are consistent with Hyams (2005).

# Case Errors in Child Japanese and the Implication for the Syntactic Theory*

**Keiko Murasugi[1, 2] and Eriko Watanabe[1]**

[1]Nanzan University and [2]University of Connecticut

## 1. Introduction

Agglutinating language-speaking children make Case errors. This paper examines the errors in nominative Case assignment observed in Japanese acquisition.

Japanese subject NPs are typically marked by the nominative Case marker, *-ga*, as given in (1) and (2)[1] (Shibatani 1978, Saito 1985, among others).

(1) a. Taro-ga ringo-o tabe-ta
-Nom apple-Acc eat -Past 'Taro ate an apple.'
b. Taro-ga kawa-de oyoi -da
-Nom river -at swim-Past 'Taro swam in the river.'
c. Hune-ga sizun-da
ship -Nom sink -Past 'A ship sank.'

(2) a. Taro-ga Hanako-ni tatak-are -ta
-Nom -Dat hit -Pass-Past 'Taro was hit by Hanako.'
b. Taro-ga Hanako-ni hatarak-ase -ta
-Nom -Dat work -Cause-Past 'Taro made Hanako work.'
c. Taro-ga hahaoya-ni dakko-si -te morat-ta
-Nom -Dat hold -do-Ger Benef-Past
'Taro received a favor of holding him from his mother.'

*Taro*, the external argument of a transitive verb and an unergative verb in (1a) and (1b), respectively, *hune* (a ship), the internal argument of an unaccusative verb in (1c), and the subjects of the complex predicates, such as passives, causatives, and benefactives, given in (2), are all marked with the nominative Case *-ga*.

At an intermediate stage of Japanese acquisition, however, children sometimes erroneously mark the subject with the dative Case marker *–ni*, as shown in (3) and (4). In these examples, the constituents

*We would like to thank Duk-Ho An, Željiko Bošković, Shigeru Miyagawa, Masashi Nomura, William Snyder, Koji Sugisaki, Kensuke Takita, Hiroyuki Ura, in particular, Mamoru Saito, Tomoko Hashimoto and Chisato Fuji for discussion and comments for this paper. Sincere thanks go to the organizers, the anonymous reviewers, and participants of the 3rd GALANA conference at University of Connecticut, and the series of the International Symposium (2006-present) of the Cambridge-Connecticut-Hyderabad-Nanzan-Siena-Tsinghua consortium in Linguistics. The research reported here is supported in part by Nanzan University Pache Research Grant I-A (2008) and by JSPS Grant-in-Aid to Nanzan University (#20520397, Principal Investigator: Keiko Murasugi).

[1] Abbreviations used in this paper are as follows: Acc=Accusative, Benef=Benefactive, Cause=Causative, Comp=Complementizer, Dat=dative Case, Gen=genitive Case, Ger=Gerund, Nom=nominative Case, Pass=Passive, Past=past, Pres=present, Q=question, OI=Optional Infinitives, RI=Root Infinitives.


Cascadilla Proceedings Project
Completed January 15, 2009

that appear in the subject position are not marked with nominative Case: They are erroneously marked with the dative Case *-ni* instead.

(3) a. A-tyan-***ni*** tabe-tyau yo (2;7) (Adult form: A-tyan-*ga*)
-Dat eat -perfect Mood 'A-tyan will eat (it) up.' (Suzuki 2002: 48)
b. Taa-tyan-***ni*** dakko site age -ru (3;11) (Adult form: Taa-tyan-*ga*)
-Dat hold do give-Pres
'Taa-tyan will give (someone) a favor of holding him/her.' (Taa-tyan corpus 1983)

(4) Onee-tyan-***ni*** otoosan-ni sika-rare -ta (4;7-4;9) (Adult form: Onee-tyan-*ga*)
sister -Dat father -Dat scold-Pass-Past
'(My) sister was scolded by (my) father.' (Murasugi and Machida 1998: 381)

The objective of this article is to describe and explain the errors of nominative assignment in Japanese acquisition.[2] The data we consider come from previous studies (e.g., Suzuki 2002), a longitudinal observation in natural context and some experiments held by Murasugi and Machida (1998), four corpora of CHILDES (MacWhinney 2000), the Taa-tyan Corpus (The National Institute for Japanese Language 1982, 1983), and the MOKO database that University of Connecticut and Nanzan University have been creating. Based on the analysis of the empirical evidence available, we first reports the descriptive findings of the erroneous Case marking of *-ni* observed in simple sentences as given in (3) and in complex predicates as given in (4). Then, we argue that this type of Case error indicates the intermediate acquisition stage where children have the structure of VP-shell, the minimum requirement for θ-role assignment, the structure of TP and the EPP feature of T, but not the full system of nominative Case assignment of adult Japanese. We suggest that children employ the default inherent Case marker, *-ni*, on the subject NP, since the "Impersonal Parameter" (Ura 1996) is "unset".

## 2. Cross-linguistic Findings of the Erroneous Dative Subjects in Child Language

"Erroneous" dative subjects in children's production are, in fact, not unique to Japanese. It has been widely reported that 2-3 year-old English-speaking children sometimes wrongly use the objective (dative) pronoun for subjects (Gruber 1967, Bellugi 1968, Menyuk 1969, Bloom 1970, Huxley 1970, Brown 1973, Guilfoyle and Noonan 1992, Radford 1990, 1999, Schütze 1995, 1997, among others).

(5) a. Her too cold (2;1) (Pierce 1992) b. Her crying now (2;3) (Vainikka 1994)
c. Him is bear (3;3) (Huxley 1970) d. Does him fish? (2;2) (Pierce 1992)
e. Him does go there (2;4) (Radford 1990) f. Her holding a balloon (2;0) (Pierce 1992)
g. Him pulled out the telephone (3;2) (Huxley 1970) h. No me take it off (2;1) (Pierce 1992)
i. Her would just break it (3;4) (Huxley 1970) j. Know what me keep for you? (3;0)
k. No us buyed this in a shop (3;9) (Huxley 1970)

2-3 year-old French-speaking children also produce "erroneous" dative (oblique) subjects as the examples in (6) show. (Clark 1985, Pierce 1992, Legendre et al. 2002, Radford 1999, among others.)

(6) a. Moi dessiner la mer (1;10)
me draw the sea 'I draw the sea.' (Pierce 1992)
b. Aller dedans moi (2;3)
go inside me 'I go inside.' (Pierce 1992)
c. Moi fais tout seul moi (2;1)
me do all by myself/me 'I do all by myself.' (Pierce 1992)
d. Toi le sais (4 years old)
you it know 'You know it.' (Clark 1985)

[2] The subject NPs are not only erroneous marked by the dative Case *–ni*, but also sometimes by the genitive Case *–no*. In this paper, however, we do not go into the discussion on the genitive Case marking errors.

In this section, we compare three representative accounts of erroneous dative Case Marking: Agreement/Tense Omission Model (=ATOM, advanced by Schütze and Wexler 1996, Wexler 1998, among others), Rispoli's (1995) Paradigm Building of Pronoun, and Syea's (2007) Topic analysis.

Assuming independent Agr and T projections (Pollock 1989, Chomsky 1991), ATOM suggests that children can optionally and independently underspecify the features in T and AgrS at the Root Infinitive stage.[3] When agreement is fully specified in English, nominative Case must be assigned; when agreement is underspecified, nominative Case cannot be assigned, and the default Case, accusative Case, may arise. Six possibilities are explained under this model as shown in Table 1: Four from the combination of ±Agr and ±T, plus two additional cases for the tense distinction between past and present.

**Table 1: Summary of possible INFL features for ATOM (Schütze 1997: 232)**

| | Verb form | Subject | Examples |
|---|---|---|---|
| Tense = present, +agreement | *-s* | NOM | *He cries* |
| Tense = present, –agreement | Optional Infinitive (OI)[4] | ACC | *Him cry* |
| Tense = past, +agreement | *-ed* | NOM | *He cried* |
| Tense = past, –agreement | *-ed* | ACC | *Him cried* |
| –Tense, +agreement | OI | NOM | *He cry* |
| –Tense, –agreement | OI | GEN | *His cry* |

The Case-marking errors in question are found because the child produces the accusative (dative) as a default when the abstract features of agreement are absent from the child's syntactic representation.

The ATOM analysis and the Paradigm Building of Pronoun approach advanced by Rispoli (1995, among others) reach a different proposal concerning the relationship between finiteness marking and pronoun case errors: ATOM proposes that they are linked, whereas Rispoli does not find such a linkage. According to Rispoli (1995), out of 12,780 first person singular subjects produced by English-speaking children, 92% (11,791) were nominative, 6% (798) were objective (dative), and 1.5% (191) were genitive. The oblique pronouns were frequently extended to subjects, but the nominative pronouns were rarely extended to non-subject use. Rispoli (1997) also tested 12 children from 1;0 to 3;0 and reports that some young children preferred to replace *I* with *me* (*me*-children), whereas others preferred to replace *I* with *my* (*my*-children). Rispoli observes that the percentage of errors in which *me* replaced *I* (the *me*-error rate) was positively correlated with the correct production of *me* as an objective pronoun (the *me*-total). The *me* for *I* and *my* for *I* errors were antagonistic, with one of the patterns almost always dominating over the other, resulting in a clear individual difference between *me*-children and *my*-children.

These analyses, however, are called into question. As Radford (1999) and Syea (2007) correctly point out, ATOM does not explain the co-existence of oblique subjects and verbal agreement inflections; in fact, the detailed corpus analysis shows that they actually do exist, as in the examples given (5d) and (5e).[5] On the other hand, it is obvious that "the lexical learning of pronouns" is not the

---

[3] The ATOM model assumes that agreement and tense have distinct properties and play distinct roles in the licensing of a subject and inflection. It is also assumed that tense governs the overt vs. null status of subjects, while Agr licenses Case features on the subject.

[4] Optional Infinitives (OIs) here refer to the Root Infinitives (RIs), or the non-finite verbal forms which children at around two years old use in matrix clauses, where they are not possible in their adult grammar. For some languages, children at around two optionally produce matrix non-finite verbs in place of finite verbs, while adults only allow non-finite verbs in embedded sentences, and hence, the RIs in those languages are also termed Optional Infinitives.

[5] Radford (1999), based on the detailed analysis of the data reported in the previous literature as in (5), argues that oblique subjects are (default) objectives, *my/its* subjects function as strong nominative pronoun, and *our* subjects result from a lexical gap in the child's pronoun paradigm. We interpret his analysis as the one inheriting both spirits of ATOM and the Paradigm Building of Pronoun. We basically agree with his argument: The lexical items, in particular, nominals sharing common semantic features tend to be mixed up in the child's production at age one and two, and the readers would be reminded of examples of relevant child data, even anecdotal evidence. For instance, a Japanese-speaking child aged 2;9, walking on the street, found a patrol car, but could not remember the exact lexicon for it, and he tried out three possible related nominals, saying, "*Kyuukyuusya-da, kyuukyuusya,*

sole issue here, either. The erroneous dative Case is found with full nouns in Japanese, where the system of the morphological realization of Case is rich. The relevant examples are repeated below.

(3) a. A-tyan-***ni** tabe-tyau yo (2;7) (Adult form: A-tyan-*ga*)
-Dat eat -perfect Mood 'A-tyan will eat (it).' (Suzuki 2002: 48)
b. Taa-tyan-***ni** dakko site age -ru (3;11) (Adult form: Taa-tyan-*ga*)
-Dat hold do give-Pres
'Taa-tyan will give (someone) a favor of holding him/her.' (Taa-tyan corpus 1983)

(4) Onee-tyan-***ni** otoosan-ni sika -rare -ta (4;7-4;9) (Adult form: Onee-tyan-*ga*)
sister -Dat father -Dat scold-Pass-Past
'(My) sister was scolded by (my) father.' (Murasugi and Machida 1998: 381)

Japanese data calls the Topic analysis into question as well. Syea (2007), citing Gruber (1967), suggests that the emerging grammars are discourse-bound, and the oblique subjects are the default forms in the Topic (TopP spec) position. Pointing out that the subject NPs surface in the oblique form tend not to be indefinite or expletive, Syea (2007) proposes that the distribution of subjects is driven by their features ([+definite][+referential][+specific]), which can only be checked at the Topic position (à la the system proposed by Beghelli and Stowell 1997).

The Topic analysis in fact may well explain the fact that some of the Japanese-speaking children, at a very early stage, erroneously mark the NP, which should be marked with accusative/nominative Case in the adult grammar, with the topic marker *–wa*. However, this analysis does not seem to explain the dative Case errors in question: The topic marker, realized as *-wa*, is used in the adult way at the stage where the dative errors are observed. For example, a child, producing erroneous *–wa* and the "correct" *–wa* optionally at 2;1 as in (7a) and (7b), used the adult form consistently after 2;2 as shown in (7c).

(7) a. To -***wa** ai -ta. To -***wa** ai -te (Adult form: To-*ga* (Nom)/ To-*o* (Acc)) (2;1)
door-Top open-Past door-Top open-Imperative 'The door opened. Please open the door.'
b. Boku-**wa** tantaan si -ta yo (2;1)
I -Top onomatopoeia do-Past Mood 'I stepped on concrete and made the sound 'tantaan'.'
c. koko-e boku-**wa** tuke-ru yo
here to I -Top put-Pres Mood (2;2) 'I will put (it) here.'

Then, how is the erroneous dative Case explained? In the next section, we attempt to describe and explain the optional errors of dative Case in Japanese acquisition. We report that Japanese-speaking children's erroneous dative subjects are found in simple sentences with transitive and unergative verbs at around age two, and in complex predicates even at around age four.

## 3. Descriptive Findings and the Previous Analyses of the Erroneous Dative Subjects in Japanese

### 3.1. The Erroneous Dative Subjects in Complex Predicates (Murasugi and Machida 1998)

Machida, one of the authors of Murasugi and Machida (1998), observed that her own child, Yuko, a 4-year-old Japanese-speaking child, frequently marked the subject of complex predicates (e.g., passive

---

*syooboosya, kyuukyuusya, patOKAA!* (=(That) is an ambulance car... an ambulance car... a fire truck...an ambulance car, A PATROL CAR! (the capitalized part indicates that it is stressed) (Transcription (by the first author) of *Hazimete-no Otukai* (The First Shopping Alone), Japanese TV program 1/3/2009). The pronoun errors would reflect the disturbance of T(I) -related elements as we will discuss later in this paper. However, Rispoli's findings on the individual differences, and the counter examples such as (5d) and (5e) to ATOM as well, would be possibly interpreted as the children's immature lexical paradigm: The errors would be due to the deficits in connecting the exact pronominal form with lemma, in addition to the syntactic deficits of 2-year-old children acquiring such language as English which does not have a particularly large amount of agreement, although it is present.

(8a), causative (8b), and benefactive (8c)) with the dative Case *–ni*, instead of the nominative Case *–ga*, in the natural context at home.

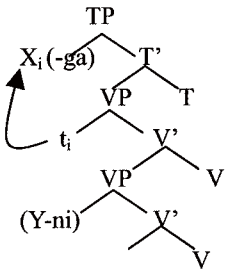
(8) a. Onee-tyan-***ni** otoosan-ni sika -rare -ta (4;7-4;9) (Adult form: Onee-tyan-*ga*)
sister -Dat father -Dat scold-Pass-Past '(My) sister was scolded by (my) father.'
b. Yu-tyan-***ni** neko-tyan-ni osakana tabe-sase -ta (4;7-4;9) (Adult form:Yu-tyan-*ga*)
-Dat cat -Dat fish eat -Cause-Past 'Yu-tyan made a cat eat fish.'
c. Yuko-tyan-***ni** otoosan-ni dakko-si-te morat-ta (4;7-4;9) (Adult form:Yuko-tyan-*ga*)
-Dat father -Dat hold -do-Ger Benef-past
'Yuko-tyan received a favor of holding her from her father.' (Murasugi and Machida 1998)

Interestingly, the child correctly assigned nominative Case on the subject NP in the simple sentences such as (9) in the same kind of context.[6]

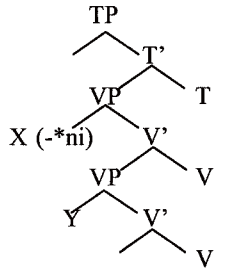
(9) Yu-tyan-ga tabe-ta (4;7-4;9)
Yuko -Nom eat -Past 'Yu-tyan ate (it).'

Murasugi and Machida (1998), based on longitudinal observation in the natural context and on both the comprehension and the production tasks, argue that dative Case errors such as (8) reflect the intermediate acquisition stage where the child assumes the minimal structure for θ-role assignment, i.e., VP-shell. At this stage, the child knows the structure of VP-shell and the basic system of nominative Case assignment.

(10) a.




b.




In the adult grammar, the subject X has to move to TP spec to get nominative Case as schematized in (10a). In the child grammar, however, the child assumes the minimal structure for θ-role assignment, i.e., VP-shell for the complex predicates, and hence, the subject NP (X in (10b)) in complex predicates remains inside the VP without moving to the TP spec ($X_i$ in (10a)). As a result, it cannot get the nominative Case from Tense. Hence, the default inherent Case marker, realized as dative *–ni*, is assigned to the subject NP in (10b).

This proposal is also supported by experimental evidence. Murasugi and Machida (1998) first examine the frequency of errors by repetition task with 47 test sentences containing complex predicates (16 passives, 14 causatives, and 17 benefactives), some of which are shown below.

(11) a. Okaasan-ga Yu-tyan-ni home-rare -ta (passive)
Mommy-Nom Yuko -Dat praise-Pass-Past 'Mommy was praised by Yuko.'

---

[6] Generally speaking, the dative Case marker *-ni* is acquired early, even when the morphological forms of the complex predicates are not fully acquired.
(i) a. Tyuutyuu-san-ni kam-***e** -ta (Sumihare, 2;1) (Adult form: kam-***are***-ta)
mouse -Dat bite-Pass-Past '(I was) bitten by a mouse.'
b. Otootyan-ni oko -***re** -ta (Sumihare, 2;2) (Adult form: oko-***rare***-ta)
daddy -Dat scold-Pass-Past '(I was) scolded by Daddy.' (Noji 1973-1977)
(ia) and (ib) indicate that the suffixal morphemes in complex predicates require some time to be acquired, but the agents are appropriately marked with the dative Case *–ni* even at age two.

b. Yu-tyan-ga nekotyan-ni osakana-o tabe-sase -ta (causative)
Yuko -Nom cat -Dat fish -Acc eat -Cause-Past 'Yuko fed the cat with a fish.'
c. Yu-tyan-ga Aririn-ni koinobori -o tukut-te morat-ta (benefactive)
Yuko -Nom Aririn-Dat a carp streamer-Acc make-Ger Benef-Past
'Yuko received a favor of making a carp streamer from Aririn.' (Murasugi and Machida 1998: 405)

As shown in Table 2, 38 out of 47 test sentences (81%) contained an erroneous matrix subject marked with *–ni*. Examples in (12) show some of the responses observed in the experiment.

**Table 2: Frequency of the Nominative-and Dative-Case-marked Subjects in the Sentence containing Complex Predicates**

| | Complex predicates: Passive (n=16), Causative (n=14), Benefactive (n=17) | |
|---|---|---|
| Nominative | 5 | 11% |
| *Dative | 38 | 81% |
| Others | 4 | 8% |
| SUM | 47 | 100% |

(12) a. Aririn-***ni** Yu-tyan-ni kam-rare-ta (4;7-4;9) (Adult form: Aririn-*ga*)
Aririn-Dat Yuko -Dat bite-Pass-Past 'Aririn was bitten by Yuko.'
b. Aririn-***ni** Yu-tyan-ni pazyama-o ki gae-* $\phi$ -ta (4;7-4;9) (Adult form:Aririn-*ga*)
Aririn-Dat Yuko -Dat pajamas-Acc change-Cause-Past
'Aririn helped Yuko to change into pajamas.'
c. Yu-tyan-***ni** Aririn-ni orimami(=origami)-o tukut-te morat-ta (4;7-4;9)
Yuko -Dat Aririn-Dat origami -Acc make-Ger Benef-Past
'Yuko received a favor of making *origami* from Aririn.' (Adult form:Yu-tyan-*ga*)

As the errors were found at high frequency in the experimental context as well as in the natural context, Murasugi and Machida (1998) consider that the errors reflect the intermediate stage of Japanese acquisition.

Then, in order to examine whether or not these errors are due to Case deficits, they tested the child with the canonical Case markers in simple sentences such as (13) by using a repetition task.

(13) Nekotyan-ga banana-o tabe-ta
cat -Nom banana-Acc eat -Past 'A cat ate a banana.'

The child never produced erroneous dative subjects in the simple sentences. Together with the fact that few dative errors were observed for the simple sentences in the natural context, they conjecture that the problem is not due to deficits with nominative Case marking *per se*.

This conclusion is further supported by the examination of Case-drop phenomenon. It is well known that in adult Japanese, the nominative Case markers on objects can be dropped, but those on subjects cannot be. (Kuno 1973, Saito 1983, Kageyama 1993, among others.)

(14) a. Taro-wa okasi-(ga) tabe-tai
-Top snack-Nom eat -want 'Taro wants to eat snacks.'
b. Dare-*(ga) ki -ta no?
who -*(Nom) come-Past Q 'Who came?' (Saito 1983: 252)

An experiment with repetition task showed that the child dropped the nominative Case on the object as in (15); but never on the subject as in (16).

(15) a. Yu-tyan-wa nani $\phi$ waka -ru no? (4;7) 'What does Yuko understand?'
Yuko -Top what understand-Pre Q (Test sentence: Yu-tyan-ga nani-ga wakaru no?)
b. Yu-tyan-da (=ga) omizu $\phi$ nomi-tain de (4;7)
Yuko -Nom water drink-want 'Yuko wants to drink water.'
(Test sentence:Yu-tyan-ga omizu-ga nomi-tain desyo.) (Murasugi and Machida 1998)

(16) Yu-tyan-**da (=ga)** otetyudai tyu-ru (4;7-4;9) 'Yuko will help you.'
Yuko -Nom help do -Pres (Test sentence: Yu-tyan-ga otetudai suru.)

The contrast exemplified in (15) and (16) indicates that the child drops nominative Case only where the adult grammar allows, and hence, the child has the knowledge of the abstract properties of the Case system. This conclusion is further confirmed by the repetition task with the accusative Case marker *-o* (which can be dropped) and the postposition *–de* (which cannot be dropped) in such examples as (17).

(17) a. Yu-tyan-wa suisai -*(de) e -(o) kak -u
Yuko -Top watercolors-with picture-Acc draw-Pres
'Yuko draws a picture with water colors.'
b. Yu-tyan-wa beddo-*(de) ne -ru
Yuko -Top bed -in sleep-Pres 'Yuko sleeps in the bed.'

The child dropped the accusative Case *-o* as shown in (18a), but not the postposition *–de* as in (18b), just like adults do.

(18) a. Suisai -de e -$\phi$ kak -u (4;7-4;9)
watercolours-with picture-(Acc) draw-Pres '(Yuko) draws a picture with watercolors.'
b. Yu-tyan-wa beddo-de ne -ru (4;7-4;9)
Yuko -Top bed -in sleep-Pres 'Yuko sleeps in the bed.'

Then, in order to see if the dative Case errors in question are due to the unavailability of the structure of VP-shell in complex predicates, the child's interpretation of such complex predicates as given in (19) were examined by picture identification task with 18 test sentences (6 each for passives, causatives, and benefactives). The child, in fact, interpreted the agent of the matrix verb and that of the embedded verb in the adult way for almost all of the test sentences.

(19) a. Wantyan-ga nekotyan-ni tatak-are -ta (passive)
doggy -Nom cat -Dat hit -Pass-Past 'A doggy was hit by a cat.'
b. Wantyan-ga Kitty-tyan-ni pantu -o hak -(s)ase -ta (causative)
doggy -Nom Kitty -Dat underwear-Acc put on-Cause-Past
'A doggy helped Hello Kitty to put on her underwear.'
c. Kitty-tyan-ga wantyan-ni hon -o yon -de morat-ta (benefactive)
Kitty -Nom doggy -Dat book-Acc read-Ger Benef-Past
'Hello Kitty received a favor of reading a book from the doggy.'

The results briefly summarized above, among others, led them to conjecture that the child has knowledge of θ-role assignment with complex predicates and VP-shell structure as well.[7]

Murasugi and Machida (1998), hence, propose that the subject NP in complex predicate sentences erroneously marked with the dative Case *–ni* are not due to deficits of nominative Case assignment. Based on the assumption that an external argument is assigned the nominative Case *-ga* by Tense at TP spec, they conclude that the child assumes the minimal structure for θ-role assignment, i.e., VP-shell for the complex predicates, and hence, the subject NP in complex predicates remains inside the VP without moving to the TP spec. As a result, it cannot get the nominative Case from Tense. Hence, the default inherent Case marker, realized as dative *–ni*, is assigned to the subject NP.

## 3.2. The Erroneous Dative Subjects in Simple Sentences (Watanabe 2008)

Watanabe (2008), based on a detailed corpus analysis of five Japanese-speaking children, Tai (1;5 -3;1, Miyata 2004a), Aki (1;5-3;1, Miyata 2004b), Ryo (1;4-3;0, Miyata 2004c), Jun (0;6-3;8, Ishii

[7] Chomsky (1995) proposes that thematic roles are conceived of as assigned to XP positions within a VP-shell. See also Manzini and Savoia (1997), Larson (1988) and Hale and Keyser (1993).

2004), and Moko (1;8-2;4), reports that erroneous dative subjects are found in simple sentences as well. Here, she proposes an interesting generalization for the dative Case errors in question: The erroneous dative subjects are found with transitive and unergative verbs as given in (20) and (21)[8], respectively, but never with unaccusative verbs.

(20) a. A-tyan-***ni** tabe-tyau yo (2;7) (Adult form: A-tyan-*ga*)
-Dat eat -perfect Mood 'A-tyan will eat (it) up.'
b. Mama -***ni** suupu ire -ta no (2;9) (Adult form: Mama-*ga*)
mother-Dat soup pour-Past Mood 'Mother poured (the) soup (into the cup).'
c. Dare -***ni** tukut-ta no? (2;10) (Adult form: Dare-*ga*)
who -Dat make-Past Q 'Who made (this)?'
d. Ozii-tyan -***ni** Kat-taa (3;0) (Adult form: ozii-tyan-*ga*)
grandfather-Dat buy-Past 'Grandfather bought (it).'

(21) a. Kore-wa neko-tyan-***ni** tori–ni-ik-u-nda-tte. Neko-tyan-***ni** ikunda-tte (2;3)
this -Top cat -Dat fetch-for -Comp cat -Dat go -Comp
'This is what the cat will fetch. The cat will go (there).' (Adult form: neko-tyan-*ga*)
b. Papa -***ni** it -ta (2;3) (Adult form: Papa-*ga*)
father-Dat go-Past 'Daddy went away.'
c. Kangaruu-***ni** basu (2;5) (Adult form: Kangaruu-*ga*)
kangaroo -Dat bus 'The kangaroo got on the bus.'
d. Piipo -***ni** it -ta kara (2;4) (Adult form: Piipo-*ga*)
onomatopeia (ambulance car)-Dat go-Past because 'Because the ambulance car went by.'

As shown in (22), subjects are "correctly" marked with *–ga* when the verb is unaccusative.

(22) a. Boosi-ga ton-da (2;2)
cap -Nom fly-Past 'The cap flew away.'
b. ookii buubuu-ga ki -ta (2;2)
big car -Nom come-Past 'A big car came.'

Watanabe (2008) examined 1403 sentences with unaccusative verbs in the corpora available, but no erroneous dative subject with the unaccusative verbs was found.

Watanabe (2008) also points out that the erroneous dative on subjects is optional. The children making dative Case errors in (20) and (21), sometimes "correctly" assigned the nominative Case marker *-ga* on the subject of unergative and transitive verbs. Some examples are given in (23).[9]

(23) a. Taish (=Taisho)-ga naran -de(i)-ru (Tai 2;0) (Miyata 2004b)
Tai -Nom be-in-line-Asp -Pres 'Taisho is in line.'
b. Mikkii-tyan-ga ato huk -u (Tai 1;9)
Mickey -Nom rest wipe-Pres 'Mickey will wipe the rest.'

In (23), the nominative Case marker *-ga* is produced in the adult way even at around age two. Watanabe (2008) finds similar examples like (20) through (23), and argues that children, at around the age two, consider the nominative Case assignment to be optional.

The uniqueness of the unaccusative verbs can also be observed in Sumihare's utterances. As we see in the contrast given in (24), nominative *-ga* is produced earlier with the unaccusative verbs than with other types of verb.

---

[8] The examples in (20a) and (20b) are originally reported in Suzuki (2002).

[9] Nominative *–ga* is produced earlier with unaccusative verbs than with other types of verb as in (i).
(i) Kore-ga ai -te -ru (Tai 1;7) (Miyata 2004b)
-Nom open-Asp-Pres 'This is open.'

(24) a. Benzyo-no to -ga hazuri-te -ru yo (Sumihare 2;0) (Noji 1973-1977)
toilet -Gen door-Nom off -Asp-Pres Mood 'The door of the toilet has been off.'
b. Kaatyan-* $\phi$ uta -u (Sumihiare 2;0) (Adult (natural) form in the context: Kaatyan-*ga*)
Mommy sing-Pres 'Mommy sings.'

The subject NP of the unaccusative verb is correctly marked with *–ga* in (24a), while *–ga* is (erroneously) omitted in the sentence with unergative verb in (24b) by the same child at age two.

Then, why is it that Japanese-speaking children produce erroneous dative subjects with transitive and unergative verbs, but not with unaccusative verbs? Watanabe's analysis is as follows. Suppose that the nominative Case *-ga* is assigned by T in sentences with transitive and unergative verbs, while it is assigned by the unaccusative verb in VP, as Kuno (1973) and Yatsushiro (1999) argue. Then, the erroneous dative Case can be elegantly explained in line with Murasugi and Machida (1998).[10] As for the sentences with transitive and uneragative verbs, Watanabe (2008) maintains that children set the minimal structure for θ-role assignment, and the subject stays *in situ*, without moving to the TP spec position. Then, the default inherent Case *-ni* is assigned to the VP-internal subject. As for sentences with unaccusative verbs, since the unaccusative verb can license nominative Case inside the VP, the subject can get nominative Case in the base position. Thus, subjects in unaccusative sentences are correctly marked with *-ga*, even though they do not move to TP spec.

## 4. Reanalysis of the Dative Subject Errors

The previous section overviewed the descriptive data of dative errors in Japanese, and the analyses proposed for the errors in simple and complex predicate sentences. What is crucial in this issue is that the nominative Case assignment is also available at the time when the dative errors are found, which would mean that the problem does not reside in neither nominative Case marking *per se* nor the child's ignorance of the specific verb forms that take dative subject.[11] As Murasugi and Machida (1998) note, the analyses shown above leave a learnability problem: It is not clear why it is the case that the subject, which can get the default inherent Case *–ni* inside VP, has to be moved to the TP spec position to get the nominative Case *–ga* in the adult Japanese. The key to answer the question seems to reside in the reason regarding why the inherent Case assignment in the base position is not sufficient for the subject.

Suppose that the adult Japanese requires the nominative Case to be obligatorily assigned, and whether or not the nominative Case assignment is obligatory is parameterized among languages, i.e., it is obligatory in Japanese-type languages, but it is not, for example, in Malayalam type languages. That is, T has a nominative Case-feature to be checked off obligatorily in adult Japanese, but during the stage where children make erroneous dative subjects, the nominative Case-feature on T remains unchecked, and hence, the default Case *-ni* appears. Then, as far as the simple sentences are concerned, one possible account would be that the dative Case errors are produced, because the value of the

---

[10] Watanabe (2008) argues, adopting the EPP parameter proposed by Platzack (1997, 2002), that the EPP feature in adult Japanese is strong and subjects have to move to TP spec, but Japanese-speaking children initially consider the EPP feature to be weak. As a result, subjects remain in VP and the default Case *-ni* is assigned to the subjects.

[11] In Japanese, a dative subject may occur when the predicate in the clause is stative as in *Taro-**ni** eigo-ga dekiru* 'Taroo understands English.' or *Taro-**ni** eigo-ga hana-er-u* 'Taro can speak English.' (Kuroda 1965, Inoue 1976, Sugioka 1985, among others). We do not completely deny the possibility that the dative errors in question also reflect the stage where children do not know which verbs take dative subjects, as children's Case errors may not necessarily occur because of a single reason. In that case, we would expect that accusative Case errors are produced also at a young stage. In fact, there is evidence that this might be the case. Some children, at age 2, fail to mark the object NP with accusative Case:

(i) Akatyan-***ga*** ture-te ik -u (Sumihare 2;2) (Adult form: Akatyan-*o*)
baby -Nom take-Ger go-Pres '(A lady) takes her baby (to somewhere).'
(ii) Taitai-***ga*** tot -ta (Sumihare 2;2) (Adult form: Taitai-*o*)
fish -Nom catch-Past '(I) caught fish.'

However, as we have seen so far, erroneous dative subjects in children's production are not unique to Japanese, and there is a clear difference between unaccusative verbs and other types of verb that the erroneous dative subjects are found with. Hence, we will not pursue that line of argument here. This problem is left for our future study.

"Impersonal Parameter"[12] (Ura 1996, Safir 1984 (NOM-drop parameter)), or a parameter concerning the checking of the nominative Case of T, is not set yet at the stage in question. According to Ura (1996), if the Impersonal Parameter is set as negative in a language L, the finite T in L always has a nominative Case-feature to be checked off. The parametric value in the adult Japanese is [-impersonal], and hence, T has a nominative Case-feature to be checked off. However, there is a stage where the nominative Case-feature on T remains unchecked in the course of acquisition. Then, the default Case *-ni* appears to Case-mark the subject NP, and hence, children produce erroneous dative subjects.

Unlike the parameter that has a subset-superset character, the Impersonal Parameter would be initially labeled as "unset," and remains so until the child receives clear evidence for one of the settings. In Japanese, a [-impersonal] discourse-pro language, a (phonologically) overt expletive is not found in the adult grammar. Rather, Japanese employs a (phonologically) null expletive, which checks off T's nominative Case features. Then, in the input available to the children, there is no clear positive evidence that their target language is a [-impersonal] language. As a result, the erroneous dative subjects in question would be produced because the [+/-impersonal] parametric value is "unset" at the stage. Then, children produce utterances conforming to the [-impersonal] value, but sometimes ones conforming to the [+impersonal] value, and wait for the specific setting of an as-yet unset parameter.[13]

Given the fact that expletives are acquired at a later stage of language acquisition,[14] then, it is predicted that similar intermediate stage would be found also in the acquisition of other languages. Our limited exploration of the cross-linguistic data discussed in Section 2 suggests that it could be the case. As for a [-impersonal] language, English, out of 46 erroneous dative subjects reported by Radford (1999), 29 (63%) were with transitives, 10 (22%) were with unergatives, but 0 (0%) were with unaccusatives, and 8 (15%) were with a copula. On the other hand, in French, a [+impersonal] language, we found dative errors in the child utterances[15] with unaccusative verbs, and children make widespread use of pronoun (such as *moi* and *toi*) in both dislocation and nondislocation constructions: "Toi venir (You come)" and "Est tombe moi (is fallen me (I fell down))," the latter example of which, in particular, would shed a light on the future analysis along this line.

Suppose dative Case errors are due to the underspecification of some feature in AgrS (T). Then, we are reminded of the insights of the underspecification hypothesis of ATOM for RIs briefly discussed in Section 2. It has been widely argued that some kind of disturbance of TP is related to RIs. Around the age when Optional Infinitives are observed in the European languages, the optional Case marking is observed in Japanese instead. If the analysis presented above is on the right track, then the insight of ATOM is maintained in Japanese as well.

Our research, however, suggests that the acquisition stage of the underspecification of AgrS (T) is an independent issue of verb forms, as far as the Japanese-type languages are concerned. Japanese-speaking children, at around two, do not show a significant use of non-finite main verbs, which is typical at the RI stage in such languages as Dutch and English (Sano 1995, Kato et al 2003).[16]

---

[12] Impersonal Parameter attempts to explain why some languages allow Impersonal constructions, but some languages do not. In the so-called nominative-accusative languages, there may sometimes happen a case where there is no element with nominative Case in a tensed clause. For example, in impersonal passive (Perlmutter and Postal 1984), if an intransitive clause is passivized together with the demotion of SUBJ, it gives rise to a situation where no nominative element appears in the clause. See Ura (1996) for further discussion.

[13] See Chomsky (1981), Gibson and Wexler (1984), Lightfoot (1991), Yang (2002), Sugisaki and Snyder (2006), and Snyder (2007), among others, for the issues on parameter setting.

[14] Culicover (2000) argues that the referential pronouns are acquired earlier than expletive pronouns, as the former has a correlate in conceptual structure, while the latter simply satisfies a formal grammatical requirement. According to his analysis of French corpus, expletive *il*, for instance, appears no earlier than 2;8. See the parallel results reported by Kirby and Becker (2007) for English.

[15] See Pierce (1992), Syea (2007), and Clark (1985), among others, for the erroneous dative Case errors in French.

[16] Murasugi and Fuji (2008a) point out that the erroneous use of RI analogue V-*ta* forms instead of V-*ru* or V-*tei-ru* forms remains even after RI analogue stage, at around 2;2 through 2;6. Some of the examples are given in (i).

(i) Kaatyan buranko timawa -na (=simawana). Ame-ga hut-***ta** yo (2;4) (Adult form: hut-*te-i-ru*)
Mommy swing put back-Mood rain -Nom fall-Past Mood
'Mommy, we have to put the swing inside the house. It's raining.'
Context: Since it was raining, Sumihare asked Mommy to bring the swing back to the house.

Rather, the analysis of the child data of Japanese, a discourse pro-drop agglutinating language, has allowed us to detect that the RI analogues are found at a much earlier stage, even at age one in Japanese[17](and Korean[18]). Children before the age of two employ the past-tense form of verbs as "default" for the non-adult-like contexts with typical semantic properties of RIs, such as Modal Reference effects and Eventivity Constraint[19]) as shown in (25).

(25) a. Atti. Atti. Atti i **-ta** (1;6) (irrealis/volition) (Adult form: ik-*u*, ik-*e*, or ik*i-tai*)
there there there go-Past 'I want to go there / Go there.'
b. Tii si **-ta** (1;7) (irrealis/volition) (Adult form: si-*ta-i*)
onomatopoeia (pee) do-Past 'I want to pee.'
c. Baba pai **-ta** (1;8) (request) (Adult form: pai-*si-te* )
mud onomatopoeia (throw away)-Past 'Please throw (this) away.'
(Murasugi, Fuji and Hashimoto 2007, Murasugi and Fuji 2008b)

The context for (25a) is as follows: Sumihare's father (Noji, the observer) tried to go back home, but Sumihare pointed to a different direction, and produced "*atti* (there)" twice and "*atti i-ta* (there go-Past)" angrily again. Noji notes on this example: Sumihare's *i-ta* means *ik-u* (go-Pres) at this stage, because Sumihare cannot say *ik-u* (Noji 1973-1977 I: 195). Noji also writes important comments for (25b), which convinces us of the Modal Reference Effects at the early stage of Japanese acquisition: Sumihare used *tii-si-ta* in a volition context when he wanted to pee. As for (25c), Sumihare produced *pai-ta*, attaching *-ta* on the onomatopoeia *pai* (to throw away), in order to ask his mother to remove mud from a potato.

Crucially, it is after the very early non-finite verb stage (or RI analogue stage) is over when children acquiring Japanese make Case errors such as (3) and (4). The Case errors are not found in the RI analogue stage, but rather, they are found after then, i.e., after the complex verbal conjugations (the realization of T (or I)) start to be productively produced. The age that the optional Case errors are observed roughly corresponds to the age that the Optional Infinitives are observed in some languages, and the correspondence would be possibly analyzed as the children's deficits of AgrS (T).

## 5. Conclusion

In this paper, based on a descriptive study of erroneous dative subjects that Japanese-speaking children produce and the previous analyses proposed for the errors, we argued that they are due to deficits in AgrS (T), and suggested a hypothesis based on the Impersonal Parameter Setting. Under this

---

There are at least two possible accounts for the fact available. One is, in line with Phillips' (1995) insights, to consider that these are due to the performance errors. The other is to regard them as the "Optional Infinitives." As the frequency of the Japanese erroneous V–*ta* forms found at age two (after the RI analogue stage) are much lower than the errors found in OIs at age two, we support the former analysis here. (See also Sano 1995, Kato et al 2003.)

[17] It has been observed that children speaking the agglutinative languages, e.g., Tamil (Raghavendra and Laurence 1989) and Turkish (Aksu-Koç and Slobin 1985), acquire the verb inflections at a very early stage. Murasugi, Fuji and Hashimoto (2007) and Murasugi and Fuji (2008a,b) argue that the early emergence of RI analogues in such languages as Japanese are explained by a morphological parameter, Stem Parameter, proposed by Hyams (1986). (See also Aljenaie 2000, Hyams 2008.)

[18] Kim and Phillips (1998) argue that the overuse of the default mood-inflection '*-e*' in the earliest speech of a Korean child parallels RIs in other languages. See Murasugi and Fuji (2008b) for arguments for the parallelism observed in RI analogue stages in Japanese and Korean.

[19] RIs typically have a modal or irrealis meaning, expressing volition or request (The Modal Reference Effects proposed by Hoekstra and Hyams 1998, among others). Observe the example in (i) from Dutch.

(i) 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)

It has been also observed that RIs are largely restricted to eventive predicates, while finite verbs can either be eventive or stative. This is termed Eventivity Constraint (Hoekstra and Hyams 1998). These early verbs are incompatible with auxiliary, and tend to receive a modal meaning with overwhelming frequency.

hypothesis, the errors in complex predicates discussed by Murasugi and Machida (1998) would be reanalyzed due to the performance limitation. The elder children's Case errors that are observed only in complex structures would suggest that the grammatical "errors" young children make are prolonged in complex structures at the elder stage of language acquisition.

## Selected References


Beghelli, Fillipo and Tim Stowell (1994) "Distributivity and Negation." In A. Szabolcsi, (ed.), *Ways of Scope Taking*. Kluwer, Dordrecht, 71-107.

Huxley, Renira (1970) "The Development of the Correct Use of Subject Pronouns in Two Children." In G.B. Flores d'Arcais and W.J. Levelt, (eds.), *Advances in Psycholinguistics*. North-Holland, Amsterdam, 141-165.

Ishii,Takeo (2004) *The Jun-corpus-Longitudinal Speech Data of a Japanese Boy aged 0;6-3;8.* (CHILDES)

Kim, Meesook and Colin Phillips (1998) "Complex Verb Constructions in Child Korean: Overt Markers of Covert Functional Structure." *BUCLD 22,* 430-441.

Kuno, Susumu (1973) *The Structure of Japanese Language*. MIT Press, Cambridge, Mass.

Miyata, Susanne (2004a) *The Aki-Corpus-Longitudinal Speech Data of a Japanese Boy aged 1;5-3;0.* (CHILDES)

Miyata, Susanne (2004b) *The Tai-Corpus-Longitudinal Speech Data of a Japanese Boy aged 1;5-3;1.* (CHILDES)

Miyata, Susanne (2004c) *The Ryo-Corpus-Longitudinal Speech Data of a Japanese Boy aged 1;4-3;0.* (CHILDES)

Murasugi, Keiko and Chisato Fuji (2008a) "Root Infinitives in Japanese and The Late Acquisition of Head-Movement." Presentation at BUCLD 33, November 1st.

Murasugi, Keiko and Chisato Fuji (2008b) "Root Infinitives: The Parallel Routes the Japanese- and Korean-speaking Children Step in." Presentation at Japanese/Korean Linguistics Conference 18, November 13th.

Murasugi, Keiko, Chisato Fuji, and Tomoko Hashimoto (2007) "What Acquired Later in an Agglutinative Language." Presentation at the Asian Glow VI, Chinese University of Hong Kong, December 27th.

Murasugi, Keiko and Nanako Machida (1998) "Fukugoo-Zyutugo no Kakutoku: 4sanzi no Baai [The Acquisition of Complex Predicates: A Case Study of a 4-year-old Japanese Child]." *Academia* 66, Nanzan University, 381-459.

Noji, Junya (1973-1977) *Youzi no Gengoseikatu no Zittai [The Language Use in Child Age]* I-IV. Bunka Hyoron Syuppan, Tokyo.

The National Institute for Japanese Language (1982) *Yozi no Kotoba Siryo 4: 2saizi no Kotoba no Kiroku [Data of Child Language 4: The Record of 2-year-old Child Language].*

Phillips, Colin (1995) "Syntax at Age Two: Cross-Linguistic Differences." *MITWPL* 26, 325-382.

Pierce Amy (1992) *Language Acquisition and Syntactic Theory: A Comparative Analysis of French and English Child Grammars*. Kluwer, Dordrecht.

Radford, Andrew (1999) "Genitive Subject in Child English." (http://privatewww.essex.ac.uk/~radford/Papers Publications/gensubjects.htm)

Rispoli, Matthew (1995) "Mechanisms of Pronoun Case Error: Biased Retrieval, Not Syntactic Incompetence." Ms., Northern Arizona University.

Saito, Mamoru (1983) "Case and Government in Japanese." *Proceedings of the WCCFL* 2, 241-259.

Saito, Mamoru (1985) *Some Asymmetries in Japanese and Their Theoretical Implications*. Ph.D. Dissertation, MIT.

Sano, Tetsuya (1995) *Roots in Language Acquisition: A Comparative Study of Japanese and European Languages*, Ph.D. Dissertation, UCLA.

Schütze, Carlson and Kenneth Wexler (1996) "Subject Case Licensing and English Root Infinitives." *BUCLD* 20, 670-681.

Shibatani, Masayoshi (1978) *Nihongo no Bunseki [An Analuysis of Japanese]*. Taishuukan, Tokyo.

Suzuki, Takeru (2002) "Nihongo no Shiekikoubun no Shuutoku ni Kansuru Keesusutadii: Shiekimeireikasetu [The Study on the Acquisition of the Japanese Causative Constructions]." *English Studies*, Tokyo Gakugei University, Tokyo, 21-51.

Syea, Anand (2007) "Oblique Subjects in Contact Languages and the Nature of Emergent Grammars." *Creolica, 23 juillet 2007* (http://www.creolica.net/syea.pdf).

Ura, Hiroyuki (1996) *Multiple Feature-checking: A Theory of Grammatical Functional Splitting*. Ph.D. Dissertation, MIT.

Watanabe, Eriko (2008) "The Overgeneration of Dative Subjects in Child Japanese." *Nanzan Linguistics Special Issue* 3.2, 229-261.

Wexler, Kenneth (1998) "Very Early Parameter Setting and the Unique Checking Constraint: A New Explanation of the Optional Infinitive Stage." *Lingua* 106, 23-79.

Snyder, William (2007) *Child Language: The Parametric Approach*. Oxford Press, Oxford.

Yatsushiro, Kazuko (1999) *Case Licensing and VP Structure*. Ph.D. Dissertation, University of Connecticut.