

**L1 ACQUISITION OF JAPANESE PARTICLES: A CORPUS-
BASED STUDY**

BY

MARI FUJIMOTO

A dissertation submitted to the Graduate Faculty in Linguistics in partial fulfillment
of the requirements for the degree of Doctor of Philosophy,
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Abstract

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by

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This dissertation is a comprehensive examination of L1 Japanese particle acquisition using two sets of corpora of naturalistic speech, JCHAT, longitudinal speech data of three Japanese children and the mothers (Miyata 2004a, b, and c, and MacWhinney 2000), and CHJ, adult-to-adult telephone conversation. The analysis reveals that despite differences in their language environment, all three children complete particle acquisition around MLU (m) 3.00 regardless of differences in the threshold of particle use. Further, none of the three children mimicked their mother's frequency of particle use, even as they all conform to a particular sequence of particle acquisition. The first set of particles that appear in children's utterances are speech acts related particles, basic Sentence Final Particles (such as *-ne* and *-yo*) and the nominative marker *-ga* and topic marker *-wa*. Under Fiengo and McClure's (2002) adaptation of Austin's (1953) Speech Act Theory, *-ga* and *-wa* are viewed as pragmatic "direction of fit" indicators. The data reveals that although both *-ga* and *-wa* can mark the subject of a sentence, children initially hypothesize an association between *-ga* and *-wa* and certain kinds of speech acts. Specifically, *-ga* is linked to statements and *-wa* to questions. The remaining particles (such as case markers, *-o* and *-ni*, and other particles, *-ni*, *-de*, *-kara*, and *-made*) appear after *-ga* and *-wa* in accordance with the

development of cognitive ability, memory, lexicon, and syntax. Two trends were found in the general acquisition sequence of these particles: (i) mono-syllabic particles are learned earlier (more specifically, particles such as *-to* and *-mo* that form complex NPs precede case markers and postpositions, which are more complex because they convey relational functions within the sentence) than di-syllabic particles and (ii) for ambiguous particles such as *-ni* and *-kara*, concrete usages are acquired before conceptually abstract ones.

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you know that I am grateful for all you have done for me. I am also grateful for the best wishes my brother, aunts, and uncles always have given me.

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Chapter 1: Introduction

This dissertation explores the acquisition of Japanese particles, including Sentence Final Particles (SFPs), case markers, and other particles. This acquisition study is unique in comparison to previous studies since the primary focus of prior research on particles is in general centered on case markers only, or on a specific kind of particle(s).

In this chapter, I will provide a brief background of the Japanese language and then outline the organization of the dissertation.

1.1 General description of the Japanese language

1.1.1. Word order and particles¹

Japanese is a language spoken by people in Japan and some descendants of Japanese who have immigrated to communities in countries around the world, for example Brazil, Hawaii, Northern California, and North Sydney. Japanese is a subject-object-verb (SOV) language and the grammatical relations between nouns and predicates are marked by particles. In general, the nominative case marker *-ga*, marks subject, and the accusative case marker *-o* marks the direct object of a transitive verb, such as (1).

(1) Ally-ga kukkii-o tabeta.
S O V
Ally -nom cookie-acc ate-past
'Ally ate cookies.'

¹ In this dissertation I will use the following abbreviation for various particles:

Nominative case: Nom
Accusative case: Acc
Genitive case: Gen
Dative case: Dat

Particles on nouns are not limited to denoting case roles. They are also used to describe other relationships between nouns and verbs. For example in (2), the particles *-to* and *-de* attach to nouns and express the meaning of 'and' and 'at' respectively.

- (2) Ally-to Bailey-ga uchi-de kukkii-o tabeta.
Ally -and Bailey -nom home -at cookie-acc ate-past
'Ally and Bailey ate cookies.'

Japanese is a topic-oriented language and the topic is followed by a particle as well, specifically by the particle *-wa*. Example (4) in particular shows that the topic is distinct from the subject of the sentence.

- (3) Momoji-wa inu desu.
Momoji -Top dog copula
'As for Momoji, (it) is (a) dog.'

- (4) Momoji-wa me-ga chairoi desu.
Momoji -Top eyes -nom brown copula
'As for Momoji, (its) eyes are brown'

The distinction between *-ga* and *-wa* is difficult for non-native speakers of Japanese, and it is a topic that has been debated by Japanese educators and linguists for many years.

A second class of particles is called Sentence Final Particles (SFPs). Rather than attaching to nouns, SFPs are found at the end of sentences. They are used to express different illocutionary acts. For example, adding the SFP *-ka* to the end of a declarative sentence turns the sentence into an interrogative (6). There is no need for overt syntactic movement.

- (5) Momoji-wa inu desu.
Momoji -Top dog copula
'As for Momoji, (it) is (a) dog.'

- (6) Momoji-wa inu desu -ka.
Momoji -Top dog copula -Question
'As for Momoji, is (it) (a) dog.'

1.1.2. Scrambling

Although it is obligatory for verbs to remain in sentence-final position, the word order of other constituents is flexible. For example, in sentence (7), the NPs can be moved or scrambled in any of the ways (7a-e) and still maintain grammaticality.

(7) Momoji-ga Bailey-ni kukkii-o ageta.
S ID DO V
Momoji-nom Bailey-dat cookie-acc past-give
"Momoji gave Bailey some cookies"

- a. Bailey-ni Momoji-ga kukkii-o ageta.
- b. Kukkii-o Momoji-ga Bailey-ni ageta.
- c. Bailey-ni kukkii-o Momoji-ga ageta.
- d. Kukkii-o Bailey-ni Momoji-ga ageta.
- e. Momoji-ga kukkii-o Bailey-ni ageta.

1.1.3. Verbal endings (polite and plain) and social hierarchy

Japanese indicates the relative social hierarchy between a speaker and a listener through the use of verb forms and specific vocabulary. For example, a sentence "Mr. Yoshida comes" can be expressed with two verbal endings, a polite form (that has a *masu* ending) and a plain form (that has no *masu* ending) as in (8) and (9).

(8) Yoshida-san-ga kimasu.
Mr. Yoshida -nom come
"Mr. Yoshida comes"

(9) Yoshida-san-ga kuru.
Mr. Yoshida -nom come
"Mr. Yoshida comes"

The meaning of the sentences (8) and (9) are the same, but the fact that the speaker of (8) uses *kimasu*, the polite ending, implies that (i) the speaker is of a lower social status than Mr. Yoshida or the listener or (ii) the speaker does not know the listener.

Alternatively, the fact that the speaker of (9) uses *kuru* indicates that (i) the speaker and Mr. Yoshida are either socially equal or that the speaker has a high social status or (ii) the speaker and the listener know each other. That is, unlike in English discourse, most

relationships are not equal in Japanese; the language is sensitive to the social status between the speaker and subject of speech and intimacy between the speaker and the listener. Social status is determined by age, job, experience, and various other kinds of reasons (e.g., based on an old feudal system still in place in a rural area). It is expected that people will be sensitive to these difference in their speech. When strangers talk to each other, they typically use polite verb forms and polite vocabulary until they determine each other's status. On the other hand, when amongst friends and families in a casual situation children and adults use plain verb forms and appropriate vocabulary to reflect their intimacy and friendliness.

1.1.4. Copula verb

Similar to action verbs which have polite and plain forms, the polite form of the copula verb is *desu* and the plain form is *da*. Although it is obligatory for a grammatical sentence to have a verb at the end, copula verbs (only) can be deleted in casual conversation. For example, (10) contains a polite ending, (11) contains a plain ending, and (12) contains the copula verb ellipsis for a sentence “This is a dog.”

(10) Kore-wa inu desu.
this -top dog copula
“As for this, (it) is a dog”

(11) Kore-wa inu da.

(12) Kore-wa inu Ø.

Further, the SFP *-ka* can attach to the end of a sentence that does not have an overt copula verb and form a question, as seen below in (13).

(13) Kore-wa inu Ø -ka?

In the most casual situations, the SFP *-ka* can be also be deleted, and a question formed with raising intonation at the end.

(14) Kore-wa inu? (with raising intonation)

1.1.5. Two kinds of adjectives: *i*-adjective and *na*-adjective

There are two kinds of adjectives in modern Japanese, *i*- and *na*-adjectives. The differences between them are mainly morphological. In particular, when the adjective modifies an NP (i.e., immediately precedes the noun to form an NP), the *i*- and *na*-adjective behave differently, i.e., *i*-adjectives end with [I] and a *na*-adjective ends with [na] before the noun.

i-adjective: omoshiroi

(15) Kore-wa omoshiroi hon desu.
this -top interesting book copula
"As for this, (it) is (an) interesting book"

na-adjective: kireina

(16) Kore-wa kireina hon desu.
this -top pretty book copula
"As for this, (it) is a pretty book"

The two adjective classes differ in other parts of their morphology as well. First, in their polite forms, *na*-adjectives and NPs have identical conjugation patterns, which differ from those of the *i*-adjectives, as illustrated in Table 1.

	<i>i</i> -adj. + desu	<i>na</i> -adj. + desu	NP + desu
Present polite	omoshiroi desu	kirei desu	NP desu
Present polite negation	omoshiro ku arimasen	kirei jya arimasen	NP jya arimasen
Past polite	omoshiro katta desu	kirei deshita	NP deshita
Past polite negation	omoshiroku nakatta desu	kirei jya arimasen	NP jya arimasen

Table 1 *i*- and *na*- Adjective Polite form

In fact, the [na] ending of *na*-adjectives probably originated from the classical Japanese copula verb *nari*, i.e., the stem of a *na*-adjective is actually a noun.

The differences between *na*-adjectives and NPs on the other hand and *i*-adjectives on the other are even more pronounced in the plain forms. Note that the plain *i*-adjective does not have any element that might correspond to the copula. (In many respects, *i*-adjectives are more like verbs—for one, both *i*-adjectives and verbs inflect—while *na*-adjectives are more like nouns.)

	<i>i</i> -adj.	<i>na</i> -adj. + da	NP + da
Present plain	omoshiroi	kirei da	NP da
Present plain negation	omoshiro ku nai	kirei jya nai	NP jya nai
Past plain	omoshiro katta	kirei datta	NP datta
Past plain negation	omoshiroku nakatta	kirei jya nakatta	NP jya nakatta

Table 2 *i*- and *na*-Adjective Plain form

The copula ellipsis pattern associated with NPs (and discussed above) applies to *na*-adjective+desu as well, as shown in (17) to (21).

- (17) Kirei desu. (na-adjective polite form)
pretty copula
"(it) is pretty"
- (18) Kirei da. (na-adjective plain form)
- (19) Kirei Ø. (na-adjective with copula ellipsis)
- (20) Kirei Ø -ka? (question with -ka)
pretty copula question
"Is (it) pretty?"
- (21) Kirei Ø? (question with raising intonation)

On the other hand, the *i*-adjective has its own inflection pattern as exemplified in (22) to (25).

- (22) Omoshiroi desu. (*i*-adjective polite form)
interesting copula
"(it) is interesting"
- (23) Omoshiroi. (*i*-adjective plain form)
- (24) Omoshiroi -ka? (question with -ka)
interesting question
"Is (it) interesting?"
- (25) Omoshiroi? (question with raising intonation)

1.1.6. Te-form: Connecting predicates

The *te*-form refers to a non-finite verb form that has *te* (or *de*) ending. It is often called a gerund, but the *te*-form is different from English gerunds. Since Japanese is an agglutinative language, verbs and adjective *te*-forms typically function to form complex verbs. For example, a sentence that ends with a *te*-form causes ungrammaticality, as in (26).

- (26) *Ima kafeteria-de gohan-o *tabete*.
now cafeteria-at meal -ACC eat-gerund
"I _ eating lunch at cafeteria." (intended)

An example of the *te*-form being used to connect predicates is given as in (27).

- (27) Kyoo daigaku-ni itte benkyoo shite arubaito-ni ikimashita.
today college -to go-gerund studying do-gerund part-time job-to go-past
'Today, (I) went to the college and studied and went to (my) part-time job.'

1.1.6. Gender: male vs. female speech

In addition to politeness, there are certain speech patterns associated with gender. Females are expected to use polite verb forms and certain words with honorifics more often than males. For example, (28) is a female version of “It’s a phone call for you” and (29) is a male version.

- (28) Odenwa desu -wa -yo.
telephone copula -female emphatic -emphatic
“(It) is a phone call (for you)!”
- (29) Denwa da -yo.
telephone copula -emphatic
“(It) is a phone call (for you)!”

The feminine sentence in (28) contains the honorific prefix *o-* in front of *denwa*, ‘telephone’, the polite form of the copula verb *desu*, and a female sentence final particle (SFP) *-wa*, while the male sentence does not contain the honorific prefix or the female SFP but it does contain the plain form of the copula verb *da*. While the rules here are loose, and the degree to which a sentence sounds feminine or sounds masculine varies, the sentence in (28), in particular, is obviously feminine. If it were uttered by a male it would probably be a surprise to a listener.

1.1.7. Orthographic system

Because much of the data used in this dissertation is derived from transcriptions of spoken corpora, the details of Japanese orthography are important.

The Japanese language employs two different orthographic systems, Kanji and Kana. Kanji characters (literally “Han dynasty’s characters”) are part of an ideographic writing system imported from China around the fifth century (at a time when the Japanese did not have their own writing system). The Chinese language is written solely in Chinese Kanji characters and has no grammatical inflection which makes it very different from Japanese, which is highly inflected. For instance, “I go to a university” in modern Chinese written with simplified Chinese characters looks like (30); written in modern Japanese it looks like (31).

(30) 我去大学
I go university
“I go to (an) university”

(31) 私が大学に行きます。
I -nom university -loc go
“I go to (an) university”

The written Japanese sentence contains both ideographic characters (shaded in gray), but in between them we find individual Kana symbols. These represent function words and inflectional endings. While the main content words of the Japanese language are easily represented by ideographic characters (which represent an idea or thing without having any connection to particular sounds) the function words and adjective/verb inflections that are also common in Japanese cannot be easily represented with Chinese characters. In response to this need, the syllabic writing system, *Kana*, was invented by modifying Kanji characters and using the simplified forms to represent sound only. In fact, two Kana sets of characters, Hiragana and Katakana were invented. In modern Japanese, Hiragana and Katakana are used to represent different kinds of words. Hiragana characters are commonly used for words of Japanese origin, function words, and inflections, and Katakana characters are used for loaned words and onomatopoeias.

According to the guidelines provided by Japanese Ministry of Education, at the present time, all Japanese students must master 1,945 Kanji characters by the end of their compulsory education; however the actual number of Kanji that exist is over 5,000 characters. For example, the following excerpt from a newspaper is an example of typical Japanese printed matter.

23日に吹き荒れた強風のため県内でも交通機関が乱れるなどした。風が強まった午後2時10分ごろから、JR宇都宮線上野—宇都宮駅間、高崎線上野—籠原駅間、湘南新宿ライン全線、京浜東北線大船—大宮駅間、川越線大宮—高麗川駅間などで一時運転を見合わせた。また午後4時半ごろ、所沢市北原町、食品卸会社「ミツマ」の外壁工事に設置した鉄パイプ製の足場が強風で倒れた。所沢署によると、隣接するパチンコ店駐車場の車7台が下敷きになったが、けが人はなかった。

(February 24th, 2008, Mainichi Shinbun, morning edition)

As illustrated in the above excerpt, the Japanese writing consists of Kanji and Kana (Hiragana and Katakana). In addition, there are Japanese punctuation marks (such as period “。”, comma “、”, quotation marks “「” and “」”) in conjunction with special characters, such as “-” and “?” alphabetical symbols, and Arabic numerals. In addition, alphabetical symbols are often used for foreign names and items, company names, logos, and acronyms, such as “SONY,” “JR,” and “CD.” The absence of word boundaries does not pose any difficulty for readers of Japanese since Kanji characters are usually used for content nouns and adjective/verb stems. Since Japanese is a strictly head-final language, almost all inflectional marking follows the stem. As such Kanji characters often provide visual cues as to where words begin.

1.1.8. Romaji and Romanization

Alphabetical symbols are referred to as *Romaji*, which literally means “Rome’s character,” since the alphabetical symbols were originally associated with the Roman Catholic New Testament imported by the Portuguese in the 15th century.

All Japanese fourth graders learn how to transliterate Japanese orthography to *Romaji* based on pronunciation. This process is called Romanization and typically spaces are provided to show a boundary according to the standardized Shusei-Hebonshiki Romaji (or the Revised Hepburn Romanization System). For example, (33) is the Romaji version of (32).

(32) 私が大学に行きます。

(33) Watashiga daigaku ni ikimasu.
I -nom university -loc go
"I go to (an) university"

As will be discussed in Chapter 3, the question of how Japanese script is Romanized is not trivial. In particular, the placement of word boundaries can have consequences for any study that relies on transcriptions of spoken corpora.

1.2. Organization of this dissertation

In Japanese, various particles emerge very early in children’s speech. As Clancy (1986) reports, basic particles, such as *-wa* (topic), *-mo* (also), *-ga* (subject), *-no* (genitive), *-de* (instrument) *-ni* (locative/dative), *-to* (comitative), *-kara* (source), *-e* (goal), and *-o* (direct object), emerge in the utterances of Japanese children between approximately 1; 8 to 2; 6 years of age. And according to Iwatate et al. (2003), children have acquired all complex grammatical component of their native language by their fifth or sixth year.

Based on those reports, First Language (L1) acquisition appears effortless and takes place in a very short time though it soon becomes apparent that adult speech presents many challenges for learners. Adult speech involves many obstacles to learning, such as Case Marker Drop (CMD) and ellipsis. Furthermore, the primary source of L1 input or child-directed speech (also referred to as Motherese or caretakers' speech) which is typically characterized by shorter and simplified sentences, can be viewed as a possible hindrance to the acquisition of proper particle use for Japanese children (since particles are often dropped in Japanese Motherese). Given the absence of consistent positive evidence available to the child the question is raised, how can successful language acquisition be explained?

In the past decade, corpus studies of care-giver and child conversation have drawn attention to the connection between child-directed speech and L1 acquisition. However, there is not much research that has focused on the link between child-directed speech and Japanese particles, and only a handful of studies are available. The results of those studies can be split into two camps. The results show that either (i) children use innate principles of grammar, as reported by Matsuoka (1998) in her corpus study of three different children, or that (ii) children are sensitive to frequencies of linguistic phenomena in their primary input, as reported in Mayes and Ono (1993).

In this thesis, I will investigate Japanese particle acquisition in order to determine which theory best explains the successful acquisition of particles in Japanese. I have organized this dissertation in the following manner.

In the next chapter, Chapter 2, background information concerning particles is presented. First, a general description and the nature of the various particles is discussed with an examination of the morphological status of particles. I will conclude by categorizing particles into four different types by examining their distribution, host selection, and stacking patterns.

In Chapter 3, I lay out several problems, such as CMD, various ellipsis phenomena, scrambling, and ambiguousness of particles, that Japanese adult speech presents to the child language learner. After a discussion of Japanese Motherese, I carry the discussion further by introducing additional problems presented in child-directed speech. This chapter also contains a review of the literature pertaining to morpheme and Japanese particle acquisition. At the end of the chapter, two questions are asked. First, is there is a particular acquisition *sequence* of particles? And secondly, how are the two kinds of L1 language source, adult-to-adult (indirect L1 source) and child-directed speech (primary L1 source), similar and different?

Chapter 4 contains the description of my corpora study. In order to address the questions raised in Chapter 2, the examination of two sets of corpora, (i) JCHAT which includes three mother-child dyads corpra (Miyata 2004a, 2004b, and 2004c, and MacWhinney 2000) and (ii) an adult-to-adult telephone conversation corpus, Japanese CallHome corpus (CHJ) are discussed. The discussion of the two corpora will be separated into three sections, CHJ data, mothers' data in JCHAT, and children's data in JCHAT. Each discussion is arranged into three subsections: (i) the description of the corpus, (ii) the description of the methodology and limitations of my study, and (iii) findings. I show the adults' accumulative usage of various particles since adults have completed their L1 acquisition. On the other hand, since children are at an ongoing stage of L1 acquisition, I present a longitudinal view of their particle use. At the end of the chapter, I present a specific particle acquisition order (SFPs, *-ga* and *-wa*, mono-syllabic particles, and di-syllabic particles) shared by all three children, and I provide a description of each particle group. Also, I argue that the timing of particle emergence should be measured on a MLU based scale rather than in chronological age, and that when MLU (m) is used, the timing of the three children's particle acquisition (over the shared ordering sequence of particle acquisition) converges. Interestingly, children and

mothers' MLU (m) become very close by the end of the JCHAT data, at children's age 3;00.

In Chapter 5, I put forth a hypothesis to explain the particle acquisition order. I begin this discussion by first analyzing children's particle mistakes in order to ensure that children are not randomly picking particles and using them inappropriately. The results shows nearly perfect usage of particles which affirms that the process of particle acquisition is indeed successful and that the emergence order coincides with the acquisition order discovered in Chapter 3. Secondly, to analyze the relationship between primary input and children's particle acquisition, the three mothers and children's particle usage are compared and analyzed. An analysis of ambiguous particles *-no*, *-ni*, and *-kara* suggest that all the children choose the syntactically and conceptually simple usages of those particles first, effectively ignoring the frequency of the mothers' particle use of these particles. That is, the frequency of the primary input does not influence the order of acquisition. Although SFPs are used most frequently by the mothers and they are acquired as the first particles by the children, I suggest that SFPs are acquired first because they reflect the earliest pragmatic/discourse structures of speech, i.e. SFPs are central to the construction of statements and questions. A seemingly ill-placed emergence of the particle *-wa* can be also explained by the pragmatic/discourse perspective found in Fiengo and McClure (2002). This proposal links the usage of *-wa* and *-ga* to an adaptation of Austin's (1953) speech act theory.

Lastly, in Chapter 6, I give a brief summery of the dissertation, and potential questions for future study are discussed.

Chapter 2: Literature Review part 1, Particles

2.1. Nature of particles

2.1.1. Morphological status problems of Japanese particles

In this section, I will investigate the morphological status of Japanese particles using Zwicky and Pullum (1983) and Vance (1993) as a starting point. In section 2.1.1., I will lay out the problems regarding the status of Japanese particles, describe the properties of affixes and clitics in 2.1.2, and review Vance's (1993) approach to classify particles in 2.1.3. Further analysis of particles follows in 2.3 to 2.7.

Japanese particles are generally considered to be 'clitic²-like' words, which do not conjugate. They attach to noun, verbs, and adjectives. For example, all of the underlined elements in Japanese in the example (1) are considered to be particles.

- (1) Kono inu-ga asa-kara ban-made risu-o oikakenai hi-wa nai.
this dog-nom morning-from night-until squirrel-acc chase-neg day-top not-exist
'There is no day that this dog does not chase squirrels from day until night.'

When one begins an investigation of particles in Japanese, problems immediately come to light. For example, the earliest discussion on the status of Japanese particles is found in Kuroda's dissertation in 1965 (reprinted in Kuroda 1992), later discussed by Miyagawa (1989) and Vance (1993) however, these three do not agree on how best to analyze particles.

Also, although Japanese grammarians agree that particles are not fully independent words, different grammarians analyze particles differently, even going so far as to refer to them in slightly different terms.

² I use the terminology 'clitic' here "to refer to a form which resembles a word, but which cannot stand on its own as a normal utterance, being structurally dependent upon a neighboring word in a construction" as described in David Crystal (1991).

For example, the majority of recent Japanese grammarians generally mark subject, object, and indirect object as *-ga*, *-o*, and *-ni*, and refer them as ‘joshi’³ (助詞), ‘kaku-joshi’ (格助詞) or ‘kuttuki’ (くっ付き), which simply means ‘attaching’. Similarly, a range of names, such as ‘joji’ (助辞), ‘kakari-joshi’ (係助詞), ‘toritate’ (取り立て) and ‘joshi’ are given to non-case particles.

Another problem, which is more serious, is the fact that the specific morphological status of Japanese particles is still controversial, i.e., various assessments of particles divide them into inflectional affixes, clitics, post-positions, or functional heads. For example, Miyagawa (1989), Sells (1995), and Whitman (2001) each analyze particles differently.

It is apparent that the status of Japanese particles ought to be clarified. A starting point is to look for a systematicity among particles, yet as it turns out, the particles actually contain heterogeneous elements, which do not necessarily contribute to a cohesive syntactic generalization. Zwicky (1985) explains this problem:

“...[An] extraordinary collection of words have been assigned to a particle category: markers of mood and sentence type, honorifics, indicators of topic and focus, case-markers, tense/aspect morphemes, markers of emphasis, subordinators, coordinators, indicators of direct vs. indirect discourse, negators, vocative markers, deictics, definiteness/indefiniteness markers, classifiers, and so on.”

(Zwicky 1985, p.291)

Zwicky points out that Japanese particles are also an eclectic collection. Different particles exhibit different distributions and attach to different constituents. For instance, the particle *-made* ‘until’ can appear after NPs and adjectives and also before the particle *-ga* (as shown in (2)), whereas the particle *-ga* can appear only after NPs (as shown in (3)).

³ The word “joshi” might be translated into English as “helping form.” The various Japanese names refer to various kinds of helping forms. In English, of course, these are referred to as “particles.”

- (2) a. Jishin-de [Tokyo]_{NP} -made hakaisareta.
 earthquake-by -even destroyed
 'Even Tokyo was destroyed by the earthquake.'
- b. [Tokyo-de [au]_{vp}]_s -made matteiru.
 -at meet -until wait-prog
 '(I) will be waiting until (we) meet in Tokyo.'
- c. Tokyo-made-ga hakaisareta.
 'Even Tokyo was destroyed.'
- (3) a. Jishin-de [Tokyo]_{NP} -ga hakaisareta.
 earthquake-by -nom destroyed
 'Tokyo was destroyed by the earthquake'
- b. *[Tokyo-de [au]_{vp}]_s -ga matteiru.
 -at meet -nom wait-prog
- c. *Tokyo-ga-made hakaisareta.

Further, Zwicky suggests that anything labeled as a 'particle' is often assumed to be a clitic without confirming its syntactic behavior. Such an acategorial classification lacks "grammatical generalization and psychological/grammatical reality" (p.291). Therefore, Zwicky proposes to distinguish between acategorial elements, such as clitics, affixes, and independent words, by consistently administering some tests.

Zwicky's claim is taken as a starting point by Vance (1993). He demonstrates how Zwicky (1983) and Zwicky and Pullum (1983) facilitate an analysis of the status of Japanese particles.

2.1.2. Affixes vs. clitics (Zwicky and Pullum 1983)

Affixes and clitics can appear in very similar environments. Zwicky and Pullum (1983) take methodological steps to separate affixes and clitics.

Clitics and affixes can be found in many languages. Examples of inflectional affixes in English and simple clitics are described in (4) and (5).

- (4) Inflectional affixes in English: plural for nouns knights
past for verbs arrived
superlative for adjectives fastest
- (5) Clitics in English: optional contracted variants of full forms
She's gone =she has gone
=she is gone
I've heard =I have heard

Zwicky and Pullum (p. 502-503)

Affixes (4) and clitics (5) are both bound morphemes in the sense that they cannot stand alone. Yet clitics are considered to fall somewhere between independent words and bound morphemes, i.e., clitics are not independent (as words), but not as tightly bounded (as bound morphemes).

Zwicky and Pullum (1983) describe systematic techniques to separate affixes from clitics. They postulate the six criteria summarized in Table 3.

Zwicky and Pullum (1989) Six criteria (p. 503-504)	
A	Clitics can exhibit a low degree of selection with respect to their hosts, while affixes exhibit a high degree of selection with respect to their stems.
B	Arbitrary gaps in the set of combinations are more characteristic of affixed words than of clitic groups.
C	Morphophonological idiosyncrasies are more characteristic of affixed words than of clitic groups.
D	Semantic idiosyncrasies are more characteristics of affixed words than of clitic groups.
E	Syntactic rules can affect affixed words, but cannot affect clitic groups.
F	Clitics can attach to material already containing clitics, but affixes cannot.

Table 3 Zwicky and Pullum (1989) Criteria

These criteria are based on the fact that the combination of a hosts and a clitics is syntactically governed, whereas the attachment of affixes is morphologically or lexically motivated. For instance, Zwicky and Pullum direct their attention to the English contracted negator *n't* to show that what is traditionally considered to be a clitic is in fact an inflectional affix using those six criteria.

Criteria A to D draw a line between clitics and suffixes by different degrees of host selection. Criterion A states that affixes show a high degree of selection with respect to their stems while inflectional affixes attach only to their specific host, i.e., the contracted negator *n't* attaches only to verbs, the plural *s* attaches only to nouns, the past tense *-ed* to verbs, and so on. On the other hand, a clitic can attach to various hosts, such as PP, verb, adjective, and adverb in, such as *'s* in (6).

- (6). a. The person I was talking to's going to be angry with me.
b. The ball you hit's just broken my dining room window.
c. Any answer not entirely right's going to be marked as an error.
d. The drive home tonight's been really easy.

(Zwicky and Pullum p. 504)

Criterion B deals with arbitrary gaps in host-clitic combination. Clitics consistently occur with a particular type of host, whereas suffixes sometimes do not (cf. the English form *stride* that fails to co-occur with the past affix *-ed*). Since all Japanese particles attach to NPs without exception, the arbitrary gap test does not provide a reason to define them as affixes⁴.

Criterion C points out that morphological idiosyncrasies are a sign of affixes. For example, English plural affixes (*dice, oxen, feet*) as well as some English past affixes (*slept, thought, went*) are irregular, while clitics do not have irregular forms. Semantic idiosyncrasies are also a symptom of being an affix, according to Criterion D. For

⁴ Vance (1993) however, notes that the test does not provide evidence to distinguish them as clitics or as affixes.

instance, the English word *last*, which is etymologically a superlative form of *late*, means ‘final’ not ‘maximally late’.

Criterion E and F separate affixes and clitics syntactically based on the assumption that a surface filter applies after word formation. Note that Criterion E further assumes that no syntactic operations can affect the [host/clitic] unit. Zwicky and Pullum demonstrate the inability to affect a ‘host+clitic’ unit in the Subject Auxiliary Inversion (SAI) in (c). On the other hand, suffixes, like the contracted negator *n’t*, moves with the host as a unit in the SAI in (8b).

- (7) a. You could’ve been there.
b. Could you have been there?
c. * Could’ve you been there?
- (8) a. You haven’t been here.
b. Haven’t you been here?

(Zwicky and Pullum p. 506)

Although examples (7) and (8) nicely illustrate the point of Zwicky and Pullum, the argument for Criterion E is not convincing since the reasons why the surface filter should apply after word formation are not given. Also, the SAI examples do not reveal anything about syntactic operations not applying to [host/clitic] units since all the clitics that Zwicky and Pullum discuss are contracted forms of auxiliary verbs. These are only possible in declarative sentences, and they are the only plausible elements that can be involved in Subject Auxiliary Inversion.

Criterion F suggests that affixes cannot be attached to a [host/clitic] unit. For example, in (9a), affixating *n’t* to the ‘host-clitic’ unit *I’d* is impossible, where as cliticizing does not cause ungrammaticality, as in (9b).

- (9) a. *I’dn’t be doing this unless I had to.
b. I’d’ve done it if you’d asked me.

(Zwicky and Pullum p. 506-507)

Similarly to Criterion E, the basis of Criterion F is questionable. In addition, unless affixation is disallowed for clitics other than the contracted auxiliary verb, Criterion F cannot be validated because all Zwicky and Pullum demonstrate in their examples for discussing criteria E and F are the properties of auxiliary verbs.

In sum, Criteria A to D (E and F are questionable) illustrate that the contracted negator is a suffix rather than a clitic.

2.1.3. Vance (1993)

Now the question is whether Japanese particles are affixes, clitics, or words. Although Vance (1993) takes the position that particles are clitics, he emphasizes that careful consideration is needed to establish his claim. Vance takes two steps to define the status of Japanese particles. First, he uses Zwicky and Pullum's (1983) criteria to demonstrate that Japanese particles are not inflectional affixes, and second, he tries to show that particles are clitics by using the tests proposed by Zwicky (1985). In this section, I will review Vance (1993) to report and analyze his attempt to clarify the morphological status of Japanese particles and discuss some problems that still remain.

As mentioned previously, Japanese grammarians refer to and analyze particles in a variety of ways. Vance uses the following assessment, which is based on Suzuki (1972) and Martin (1975).

Case particles	ga, o, ni, e, de, to, kara, made, no, and Ø (null)
Focus particles	wa, mo, koso, sae, shika, sura, *demo ³ *dake ⁵ , *bakari, *nado, *nanka, *made
Nominal conjoining particles	to, ya, ka, toka, dano, yara, nari, and ni
Sentence final particles	ne, yo, and ka
Conjunction-like particles	shi, ga, and kara
Conditional and the copula	nara and da

Table 4 Assessment of Particles by Vance (Vance p. 4-6)

Vance then applies the criteria found in Zwicky and Pullum (1983) to differentiate clitics and affixes.

According to criterion A, low selectivity with respect to their host is a characteristic of clitics. All Japanese particles can attach to nouns, but some particles also attach to other grammatical constituents. For example, Vance observes that particles can attach to verbal hosts in the following example.

- (10) a. Denwa suru -ga ii.
 phone do -nom good
 'you should phone.'
- b. Yamu-o enai koto datta.
 stop -acc cannt thing was
 'it couldn't be helped.'

(Vance p. 9)

Although the particles appear to attach to the verbs in the surface strings in (10a) and (10b), they are not exactly attaching to verbs. (10a) ought to be analyzed as a direct nominalization since the actual meaning of (10a) is an indirect suggestion (not the direct suggestion indicated by Vance) in (10a), which should have the structure of (11).

³ The * indicates that when the particle is combined with a noun, the resulting combination functions like a simple noun according to Suzuki.

⁵ Suzuki (1972) mentions that 'dake', 'bakari', 'nado', 'nanka', and 'made' function like simple nouns.

(11) [Denwa suru-no] -ga ii.

phone do fact -nom good
"Calling is a good thing (so you may want do that?)."

When abstract *no* 'one, thing, fact' takes an adjective, adverb, or verb as its host, the [host+no] unit becomes an NP, such as in (12).

- (12) a. akai akai-no
 red 'the red-one'
- b. jikkenshita jikkenshita-no
 experiment-past 'the experimented thing'

Therefore, (10a) probably involves an ellipsis of the abstract *no* that nominalizes the verbs. That is, the actual host in (10a) is an NP. Another piece of evidence for this analysis is that the usage of direct nominalization is very limited. In the Kansai dialect, direct nominalization is not a legal construction at all. In fact, *n*, the contracted form of abstract *no*, must occur in front of the nominative marker *-ga*, as seen in (13), otherwise (14) is ungrammatical.

(13) [Denwa suru-n] -ga icchan ee-de.
 phone do thing -nom the bestgood-emphatic
 'Calling is best good thing to do.'

(14) *[Denwa suru- Ø] -ga icchan ee-de.
 phone do thing -nom the best-emphatic
 'Calling is the best thing to do'

The direct nominalization is rarely found in normal conversation in Tokyo dialect either. It is only found in the context of theatrical, lyrical, and formal writing. Likewise, (10b) should also be considered to be a case of direct nominalization.

(15) ?[Yamu-no]-o enai koto datta.
 stop -acc-thing cannot thing was
 'it couldn't be helped.'

The sentence in (15) which includes the abstract *no* sound somewhat odd, because (15) is a fossilized expression. In fact, 'yamu' is originally a verb, but it is fossilized as a noun in many expressions. For example, 'yamu' is followed by case markers in *yamu-ni* - *yamarezu* (without being able to stop) and *yamu-o ezu* (reluctantly).

On the other hand, focus particles exhibit some variety in selectivity. In addition to nouns they can take verbs, gerunds, and adverbs as their host.

- (16) Gaman suru-shika nai. [verbal host]
 patience do but is-not
 'There's nothing you can do but be patient.'
- (17) Mite sae kurereba ii. [gerunds: -*te* form of a verb host]
 look(gerund) just give (cond) OK
 'If you'll just look (at it) for me, that'll do.'
- (18) Kuwashiku-wa setsumei shinakatta. [adverbial host]
 in-detail -top explanation do-not
 '(they) didn't explain in detail.'

(Vance p. 9 -10)

Although the evidence is not completely clean, Vance states that particles are not affix-like. However, his analysis seems imprecise. Selectivity of individual particles, (which I will discuss in a later section), supports the hypotheses that case particles behave like affixes since they do not attach to anything but to NPs.

According to Criterion B, clitics do not exhibit any arbitrary gaps with respect to their hosts. In the case of Japanese particles, particles can be added to all NP hosts and they do not exhibit any gap. For this reason, Vance concludes the test does not provide evidence to classify Japanese particles as affixes.⁶

Morphological idiosyncrasies are more characteristic of affixes than clitics, according to Criterion C. That is, host+affix may contain irregularities, such as *knives* (irregular stem), and *oxen* (irregular affix). The test offers positive evidence for

⁶ I agree with Vance that the arbitrary test does not provide any evidence to consider Japanese particles to be affixes. However, he doesn't believe it is evidence for them being clitics either. Vance states, the arbitrary-gap test provides no grounds for classifying Japanese particles as affixes. Of course, it provides no positive reason for classifying them as clitics either. (p.11) I find his conclusion to be contradictory but Vance does not mention the rationale for this conclusion.

categorizing Japanese particles as clitics since there are no morphological irregularities⁷ in noun+particle combinations.

Criterion D suggests that host+affix words (such as English superlatives) are more semantically idiosyncratic than host+clitic words. Although there are not many, Vance points out there are some semantically idiosyncratic host+particle combinations. For example, Vance claims that there are no semantic differences between *ima* 'now' and *ima+ni* 'points in time'. Also, the adverb *yukuyuku* means 'some day', 'in the future', 'on the way', or 'as one goes' by itself, but when combined with *-wa*, it can only mean the first. Vance suggests that this test provides weak evidence for treating Japanese particles as affixes. I disagree with his analysis for both examples. There are in fact semantic differences between *ima* and *ima+ni*. *Ima* in sentence (19a) indicates 'current point of time', while it indicates 'sometime in near future' in (19b).

(19) a. Pan-no kiji-wa ima ookiku naru-yo.
bread-GEN dough-TOP now big become-emph
'The bread dough is about to get big now'

b. Pan-no kijii-wa ima-ni ookiku naru-yo.
bread-GEN dough-TOP now -by big become-emph
'The bread dough will get big eventually'

Furthermore, the adverb *yukuyuku+wa* can actually mean 'some day' and 'in the future' as in (19a and 19b). This adverb is a reduplication of the verb *yuku* 'go' and has two general meanings, abstract 'time in the future' and actual action of going 'as one goes'. When *yukuyuku* expresses future with *-wa*, it sounds like a fixed expression⁸ and behaves like an NP, for example in (20), but when it does not express the abstract meaning, it modifies the verb as in (21).

⁷ Vance finds only a few accentual irregularities in *made* and *no*.

⁸One may also think that greeting expressions, such as *konnichi* (today)-*wa* which means 'good day', are also semantically idiosyncratic, but Vance explains that they are fossilized expressions, and are therefore not examples of idiosyncrasy.

- (20) Yukuyuku-ga abunai.
 -NOM dangerous
 'The future will be challenging.'
- (21) Yukuyuku sakura-o nagameta.
 cherry blossom-ACC look-past
 'I watched chrry blossams one the way.'
 'As I was going, I watched cherry blossom.'

Given these observations, I do not find any evidence to support the claim that these particles can be affixes.

Criterion E predicts that syntactic rules can affect [host+affix] words, but not [host+clitic] words since Zwicky and Pullum assume that cliticization occurs after all syntactic rules have applied. In fact, syntactic rules such as in (22b) affect Japanese [noun+particle] words.

- (22) a. Jisho-wa moo katta-yo.
 dictionary-top already bought EXCL
 'I already bought that huge dictionary.'

b. Moo katta-yo, jisho-wa.

(Vance, p.14)

The movement in (22b) is possible because a noun is a minimal NP. But Vance claims that the relevant unit for the movement is an NP+particle(s). For example, the movement in (23c) is not allowed since it involves the breaking of a syntactic unit.

- (23) a. [Ano dekai jisho]-wa moo katta-yo.
 that huge dictionary-top already bought EXCL
 'I already bought that huge dictionary.'

b. Moo katta-yo, [ano dekai jisho]-wa.
 'I already bout it, that huge dictionary.'

c. *Ano dekai, moo katta-yo, jisho-wa.
 'That big I already bought it, dictionary.'

(Vance p.14)

Vance does not see any conflict with Zwicky and Pullum's assumption⁹ since he does not find any syntactic rules that affect the [host+particle] unit. Therefore, he concludes

⁹ Although Vance accepts Zwicky and Pullum's assumption that cliticization occurs after the application of syntactic rules, he does not offer details of how particle cliticization takes place in Japanese.

that Japanese particles are not affixes. However, as I mentioned previously the basis of the assumption from Zwicky and Pullum (1983) that Vance also assumes, is not so clear. Therefore, the analysis based on Criterion E may not be accurate.

Criterion F predicts that clitics can attach to [host+clitic] words but affixes cannot. Vance provides evidence that most particles can follow other particles,¹⁰ as seen in the following examples:

- (24) a. Shanghai-nado-e itta. [focus +case particle]
 Shanhi etc. to went
 ‘(I) went to shanghai, etc.’
- b. Tomodachi-kara-no kozutsumi-ga todoita. [case+case particle]
 friend from GEN package ACC arrived
 ‘A package from a friend arrived.’

(Vance p.15)

Vance states that examples like (24) do not tell us much about the morphological status of particles unless there is an independent way to check if a particle is actually attaching to a [host+clitic] unit. Vance claims that the test offers an indication that Japanese particles behave like clitics if it is assumed that particle+particle sequences are clitics+clitics. But it is premature to conclude so since there are no independent grounds to confirm or disconfirm this assumption about the morphological nature of the particle sequence.

In sum, Vance concludes that it is reasonable to assume that Japanese particles are clitics and not affixes.

After concluding that Japanese particles are not affixes, Vance investigates whether or not clitics are independent words using the criteria proposed in Zwicky (1985).

It turns out that some of the criteria proposed by Zwicky do not work with Japanese. First, three types of phonological criteria, internal /external Sandhi, prosodic

¹⁰Not all particles can follow other particles as seen in (21). I will discuss this “particles stacking” further in a later in section, Chapter 2.3.

phonology, and word/phrase domains do not provide a clear distinction¹¹. Similarly, the accent criterion gives ambiguous results. Zwicky claims that an element which carries its own accent in a phrase is a word, and clitics do not seem to have their own accent. All Japanese particles have an underlining accent. This accent is realized only when the particle attaches to an unaccented noun. This fact indicates that Japanese particles are clitics. There are, however, some counter examples. Martin (1975)'s restrictive particles, *-dake*, *-bakari*, and *-made*, suppress the underlying accent of nouns;¹² this may indicate that some particles are actually independent words.

However, Vance claims that the remaining criteria give a clearer indication that Japanese particles are clitic-like. The binding test predicts that an element that can occur in complete isolation is an independent word and one that cannot is a clitic. Vance cites examples from Hattori (1950:477) to illustrate that a particle can occur in isolation in some circumstances. In example (25), a participant in the conversation finishes another's sentence starting with a host-less particle.

(25) Speaker A: Tanaka-kun wa?
 -title TOP
 'How about Tanaka?'

Speaker B: Ø -Wa ne, kaisha-o yameta-yo.
 -TOP TAG company-ACC quit -EXCL
 'Oh, (he) quit (his) company!'

Vance (1993, p.20)

¹¹The following are reasons why Zwicky's (1985) phonological criteria do not work in Japanese:
 (i) *Internal /External Sand i(nasalization of sound)*: Zwicky uses the internal sandhi rule (which affects clitics) and an external sandhi (which affects words) to distinguish clitics and words. However, sandhi can appear as both word-initial and word-internal in Japanese. Therefore, sandhi is not a useful test for Japanese.
 (2) *Prosodic phonology*: Prosodic phonology does not work to predict clitic and independent word distinctions. For example, since the accent pattern of [host+particle] and [Adj+N] are the same, this test predicts Japanese particles to be independent words. The accuracy of this prediction however, is not so clear since the conditional suffix *reba* 'if', which is clearly an inflectional suffix, also parallels an [Adj+N] pattern.
 (iii) *Word/phrase domains*: Vowel harmony effect concerns clitics *and* independent words in Japanese; as such the test is not applicable.

¹² I wonder if any particle consisting of only one syllable suppresses the accent of nouns.

Hattori's example should be considered to be a particularly special and rare case. The utterance of speaker B in example (25) is only possible when it is uttered without any pause after the utterance of speaker A as though they are one sentence. Whereas speaker B's utterance becomes unacceptable when there is a pause after speaker A's utterance. This indicates that host-less particle is ungrammatical. In addition, Vance gives examples to define Japanese particles to be un-bounded, but it seems to be more plausible to assume that they are bounded. For instance, he cites parenthetical material intervening between the host and the particle in written form to illustrate that particles may be free. Consider (26).

- (26) shiai-wa Seiun-koko (Hara Kazuo kocyo)-de okonawareta.
 game-Top high school (principal)-LOC was held
 'The game was held at Seiun High School (Hara Kazuo, principal).'

(Vance 1993, p.21)

The material that fills in the parenthesis can be anything (such as an NP, a complete, or an incomplete sentence), and of course the parenthetical expressions are only possible in written form. Vance claims that parenthetical material is not a good determiner for the binding test. I agree with Vance and I also believe that a language expression that is only possible in written form should not be taken to describe any phenomenon in natural language.

The closure test predicts that clitics can close off [host+affix/clitic] units. Many Japanese particles can follow other particles but inflectional suffixes cannot follow a particle once a particle is added to an inflectional form of a verb or adjective. In fact, particle-*wa*, *-ga*, *-ni*, *-no*, *-to*, *-wa*, *-mo*, *-shika*, *-sura*, and *-demo*, close off [host+particle] units. (27) is an example with *-o* (which will be discussed in detail in the next section).

- (27) *Sakana-o-dake inu-ni yatta.
 fish -ACC-only dog-dat give-past

Although some particle close off [host+particle] units, Vance does not believe that this indicates anything about the morphological status of particles. Vance assumes that many Japanese particles are independent words since like English prepositions, they cannot be preceded by derivational prefixes.

Additionally, Zwicky's ordering test suggests that clitics are strictly ordered relative to their hosts, whereas words are free. Japanese particles follow a noun phrase without exception with respect to the NP (the order is always NP-particle, never particle-NP). Still, Vance claims that some Japanese particles are independent words because Japanese particles behave like English prepositions and are unrelated to word formation. Regardless of the accuracy of this assumption, there are logical flaws in the closure and ordering test as a basis for judgment since the purpose of Vance's study is the investigation of the status of Japanese particles in which the syntactic nature is yet to be known and no syntactic or independent evidence is provided to motivate an analogy between Japanese particles and English prepositions. It is true that many Japanese particles can attach to an [NP+particle] unit and that many English prepositions can attach to [NP+preposition] units, as in (28) and (29).

(28) The dog ran in under the table.

(29) Bill walks out onto the patio.

However, Japanese particles can multiply attach to an [NP+particle] unit, as in (30), yet no more than two prepositions can be stacked in English. This indicates that there must be some difference between particles and English prepositions.

(30) Sono higai-wa Tokyo-made-ni-sae-mo oyonda.
that damage-TOP -until -to -even-also extend-past
'Speaking of that damage, it also extended even beyond Tokyo.'

Therefore, equating Japanese particles and English preposition is possibly erroneous.

According to the distribution test, clitics and affixes have a simple distribution whereas words have a more complicated distribution with respect to a host. Vance assumes that only Japanese focus particles are independent words because case and conjoining particles usually attach to NPs just like English prepositions (categorized as independent words by Zwicky). However, I am hesitant to agree with Vance, since: (i) further analysis of particle distribution shows (detailed discussion will be found in the next section) *-kara*, *-made*, and *-no* which Vance refers as case particles also attach to hosts other than NPs, and (ii) none of the case markers or particles can stand alone.

Syntactic criteria give mixed results. According to the deletion test, if the deletion of a host or particle is possible (in a [host+particle] combination) then the host and the particles are independent words. The examples in (31) and (32) seem to indicate that Japanese particles are independent words.

(31) Chichi-no kuruma-wa ookii kedo, [boku-no- Ø]-wa chiisai.
 father GEN car TOP big but I GEN TOP small
 'my father's car is big, but mine is small.'

(32) Kumi-chan-no akai pen-wa koko-ni aru kedo, [Haru-chan no- Ø]-wa nai.
 TITLE GEN red pen TOP here LOC is but TITLE GEN TOP is-not.
 'Kumi's red pen is here, but Haru's isn't.'

*Haru-chan-no [akai- Ø]-wa nai.

(Vance p.25)

However, the deletions in the Japanese examples involve nouns, rather than entire NPs. Since Japanese particles attach to NPs, when the particle loses the head of the host NP, ungrammaticality results as in (32). In this respect, this test does not support the conclusions that Japanese particles are words.

Zwicky claims that if either the host or the particle can be replaced by a pro-form, they are both words.

- (33) Furui terebi-o sutete atarashii no -o katta.
 old TV ACC discard new one ACC bought
 '(I) threw away the old TV and bought a new one.'
 (Vance p.26)

Example (33) shows the pro-form *-no* replacing the noun. This seems to indicate that the particle and host are independent words (although Vance claims the test is dubious). Since the English clitic in (34) can attach to the pronoun, this test seems to produce contradictory results.

- (34) Tom's read the book, and he's seen the movie too.
 (Vance p.26)

The movement test indicates that the host and the particle are words if the host or particle can be moved independently. Since there is no movement rule in Japanese that separates a particle from the host noun, the test gives no indication as to whether particles are words.

The last test is the interface criterion. Since cliticization is assumed to occur after the application of all syntactic rules, if the formation of a [noun phrase+particle] unit has to be specified under a syntactic rule, the particle is an independent word. Although the formation requires syntactic rules ($X+Y=Z$, where $X=NP$, $Y=particle$, and $Z=[NP+particle]$ unit) that may suggest that particles are words, when one assumes that [NP+particle] units have a sister relationships under PP, no mention of a syntactic rule is required. Therefore, Vance concludes that this Criterion does not provide evidence for particles to be considered to be words.

In sum, it is clear that Japanese particles are not independent words. Further, based on the analysis of Zwicky and Pullum (1982), Zwicky (1983), and Vance (1993), particles split into two groups, affixes and clitics. The case particles *-ga*, *-o*, and *-ni* belong to the affix group since they attach to NPs exclusively without exhibiting any

semantic idiosyncrasies. In contrast, the remaining particles seem to behave like clitics because they display a low degree of selection with the respect to their host.

As observed, the given criteria do not produce a definitive picture of how the distribution, host selection, and constraints on particle stacking of individual particles should be accounted for. Further examination would seem to be necessary to reveal the true characteristics of particle distribution.

2.2. Individual particles

A closer look at criteria from Zwicky and Pullum (1983), Zwicky (1985) and Vance (1995) reveals that Japanese particles can be split into two categories: (i) *-ga*, *-ni*, and *-o*, and (ii) others (although these can be divided into into two groups as well). In this section, constraints on particle host and different types of particle stacking will be examined to further define the characteristics and distribution of individual particles.

2.2.1. Particle hosts

Let us examine the hosts of different particles. I will first discuss the host of Sentence Final Particles (SFPs), case markers, and focus particles.

2.2.1.1. Sentence Final Particles (SFPs)

Stated simply, sentence final particles, such as *-ka* (か), *-kana* (かな), *-kashira* (かしら), *-ne* (ね), *-yo* (よ), *-wa* (わ), *-sa* (さ), *-na* (な), *-no* (の), *-zo* (ぞ), attach to the final position of anything, i.e., a SFP host can be a complete affirmative sentence, a

complete negated sentence, or an affirmative/negated fragment of sentence which may be an NP, an *i*-adjective, *na*-adjective (cf. Chapter 1.2), adverb, or verb.

Furthermore, SFPs can be categorized into three basic types: question, agreement/confirmation, and emphatic. The basic types of SFPs are used by both women and men and all other SFPs belong to a subtype of one of the basic types. Basic SFPs are typically used by one sex or by a particular age group. Also, some SFPs can be used quite differently from one idiolect or dialect to the next. The following sections describe individual SFPs and their characteristics.

2.2.1.1. Basic Question: *-ka*

The sentence final particle *-ka* attaches to the end of all grammatical categories and sentences to indicate a question. The following examples illustrate how *-ka* can attach to an NP, *i*-adjective, *na*-adjective, adverb, verb, and an affirmative and negative sentence. The only restriction is that *-ka* cannot occur after the plain form¹³ of copula verb *da*.

- (35) Kore-wa [hon] NP
This -top book
"This (is) a book."
- (36) Kore-wa [hon] NP -ka
This -top book -Question (Q)
"(Is) this a book?"
- (37) *Kore-wa [hon] NP da -ka
This -top book copula -Q
"Is this a book?"
- (38) Kore-wa [omosiroi] i-Adj
This -top interesting
"This (is) interesting."
- (39) Kore-wa [omosiroi] i-Adj -ka
This -top interesting -Q
"(Is) this interesting?"

¹³ See 1.1.4 for a review of the copula.

- (40) Kore-wa [kirei] Na-Adj
This -top pretty
"This (is) pretty!"
- (41) Kore-wa [kirei] Na-Adj -ka
This -top pretty -Q
"(Is) this (is) pretty?"
- (42) [Yukkuri] Adv
slowly
"slowly."
- (43) [Yukkuri] Adv -ka
slowly -Q
"(Does it do/move) slowly?"
- (44) [Nomu] v
drink
"(I) drink."
- (45) [Nomu] v -ka
drink -Q
"(Do you) drink!"
- (46) [Mado-kara Fujisan-ga mieru] s
(I) window from Mt. Fuji -sub can see
"(I) can see Mt. Fuji from the window."
- (47) [Mado-kara Fujisan-ga mieru] s -ka
window from Mt. Fuji -sub can see -
"Can (you) see Mt. Fuji from the window?"
- (48) [Mado-kara Fujisan-ga mienai] s -ka
window from Mt. Fuji -sub can not see
"Can't (you) see Mt. Fuji from the window!"

2.2.2.1.1. Subtype of Question: -no, softer tone question

Similarly to *-ka*, *-no* attaches at the end of fragments and sentences to indicate questions but in a softer tone. Additionally, NPs, *na*-adjectives, and adverbs have to be followed by "na" (c.f., Chapter 1.2).

- (49) *Kore-wa [hon] NP -no
This -top book - Q
"(Is) this a book?"
- (50) Kore-wa [hon] NP na -no
This -top book copula - Q
"(Is) this a book?"
- (51) Kore-wa [omosiroi] i-Adj -no
This -top interesting -Q
"(Is) this interesting?."

- (52) Kore-wa [kirei] Na-Adj na -no
 This -top pretty copula -Q
 "(Is) this (is) pretty?"
- (53) *[Yukkuri] Adv -no
 slowly -Q
 "(Does it do/move) slowly?"
- (54) [Yukkuri] Adv -na -no
 slowly copula -Q
 "(Does it do/move) slowly?"
- (55) [Nomu] v -no
 drink -Q
 "(Do you) drink?!"
- (56) [Mado-kara Fujisan-ga mieru] s -no
 window from Mt. Fuji -sub can see -
 "Can (you) see Mt. Fuji from the window?"
- (57) ([Mado-kara Fujisan-ga mienai] s -no
 window from Mt. Fuji -sub can not see
 "Can't (you) see Mt. Fuji from the window!"

2.2.2.1.2. Subtype of question: *-kana* and *-kashira*, uncertainty and doubt

The SFPs *-kana* and *-kashira* attach to the end of all grammatical categories and sentences and indicate uncertainty on the part of the speaker. Usually, *-kashira* is used by women whereas *-kana* is used by both sexes but preferred by men.

- (58) Kore-wa [hon] NP -kana/kashira
 This -top book (I) wonder
 "I wonder this a book."
- (59) Kore-wa [omoshiroi] i-Adj -kana/kashira
 This -top interesting (I) wonder
 "I wonder this is interesting."
- (60) Kore-wa [kirei] Na-Adj -kana/kashira
 This -top pretty -(I) I wonder
 "I wonder this is pretty"
- (61) [Yukkuri] Adv -kana/kashira
 slowly (I) wonder
 "I wonder (Does it do/move) slowly."
- (62) [Nomu] v -kana/kashira
 drink (I) wonder
 "I wonder (he/she will) drink."
- (63) [Mado-kara Fujisan-ga mieru] s -kana/kashira
 window from Mt. Fuji -sub can see (I) wonder
 "I wonder (I) can see Mt. Fuji from the window."

- (64) [Mado-kara Fujisan-ga mienai] s -kana/kashira
 window from Mt. Fuji -sub can not see (I) wonder
 "I wonder (I) can't (I) see Mt. Fuji from the window"

2.2.2.1.3. Basic Emphatic: -yo

The sentence final particle -yo is used by both men and women. It attaches to all types of grammatical categories and sentences to indicate emphasis of the speaker's belief.

- (65) Kore-wa [hon] NP -yo
 This -top book -emphasis
 "This (is) a book!"
- (66) Kore-wa [omoshiroi] i-Adj -yo
 This -top interesting -emphasis
 "This (is) interesting!"
- (67) Kore-wa [kirei] Na-Adj -yo
 This -top pretty -emphasis
 "This (is) pretty!"
- (68) [Yukkuri] Adv -yo
 slowly -emphasis
 "(please do something) slowly!"
- (69) [Nomu] v -yo
 drink -emphasis
 "(I do) drink!"
- (70) [Mado-kara Fujisan-ga mieru] s -yo
 (I) window from Mt. Fuji -sub can see -emphasis
 "(I) can see Mt. Fuji from the window!"
- (71) [Mado-kara Fujisan-ga mienai] s -yo
 (I) window from Mt. Fuji -sub can not see -emphasis
 "(I) can not see Mt. Fuji from the window!"

2.2.2.1.4. Subtype emphatic: *-sa*, male emphatic

The sentence final particle *-sa* behaves identically to *-yo*. Although it indicates a softer assertion which is similar to the English “I’d say,” “I’d think,” or “I suppose”. It is typically used by men more than by women.

- (72) Kore-wa [hon] NP *-sa*
This -top book -assertion
“This (is) a book, I’d say”
- (73) Kore-wa [omosiroi] i-Adj *-sa*
This -top interesting -assertion
“This (is) interesting, I’d say.”
- (74) Kore-wa [kirei] Na-Adj *-sa*
This -top pretty -assertion
“This (is) pretty, I’d say”
- (75) [Yukkuri] Adv *-sa*
slowly -assertion
“(Please do something) slowly, I think”
- (76) [Nomu] v *-sa*
drink -assertion
“(I do) drink”
- (77) [Mado-kara Fujisan-ga mieru] s *-sa*
(I) window from Mt. Fuji -sub can see -assertion
“(I) can see Mt. Fuji from the window, I think”
- (78) [Mado-kara Fujisan-ga mienai] s *-sa*
(I) window from Mt. Fuji -sub can not see -assertion
“(I) can not see Mt. Fuji from the window, I think!”

2.2.2.1.5. Subtype emphatic: *-wa*¹⁴, female soft assertion

The sentence final particle *-wa* is usually used by women (although it is used by both sexes in Kansai as a substitute for emphatic *-yo*). It attaches to all types of

¹⁴ Note that the SFP *-wa* and topic marker *-wa* are orthographically different, i.e., the SFP *-wa* is written as わ and topic *-wa* as は.

grammatical categories and sentences and indicates a softer assertion. The SFP *-wa* can attach to an NP, *na*-adjective, and adverb only when followed by a plain or polite form of the copula verb.

- (79) *Kore-wa [hon] NP -wa
 This -top book -assertion
 "This (is) a book!"
- (80) Kore-wa [hon] NP desu -wa
 This -top book copula -assertion
 "This is a book, I'd say"
- (81) Kore-wa [hon] NP da -wa
 This -top book copula -assertion
 "This is a book, I'd say"
- (82) Kore-wa [omosiroi] i-Adj -wa
 This -top interesting -assertion
 "This (is) interesting, I'd say."
- (83) *Kore-wa [kirei] Adj -wa
 This -top pretty -assertion
 "This (is) pretty, I'd say"
- (84) Kore-wa [kirei] Na-Adj desu -wa
 This -top pretty copula -assertion
 "This is pretty, I'd say"
- (85) Kore-wa [kirei] Na-Adj da -wa
 This -top pretty copula -assertion
 "This is pretty, I'd say"
- (86) *[Yukkuri] Adv -wa
 slowly -assertion
 "slowly, I'd think"
- (87) [Yukkuri] Adv desu -wa
 slowly copula -assertion
 "slowly, I'd think!"
- (88) [Yukkuri] Adv da -wa
 slowly copula -assertion
 "Slowly, I'd think"
- (89) [Nomu] v -wa
 drink -assertion
 "(I do) drink!"
- (90) [Mado-kara Fujisan-ga mieru] s -wa
 (I) window from Mt. Fuji -sub can see -assertion
 "(I) can see Mt. Fuji from the window, I think"
- (91) [Mado-kara Fujisan-ga mienai] s -wa
 (I) window from Mt. Fuji -sub can not see -assertion
 "(I) can not see Mt. Fuji from the window, I think"

2.2.2.1.6. Subtype emphatic: -zo, male strong emphatic

The SFP -zo attaches to all types of grammatical categories and sentences to indicate strong emphasis of the speaker's intention or belief which is more forceful than -yo. However, similar to -wa, -zo can attach to an NP, *na*-adjective, and adverb only when followed by a plain or polite form of the copula verb. SFP -zo is normally used by men.

- (92) *Kore-wa [hon] NP
This -top book -emphasis
"This (is) a book!"
- (93) Kore-wa [hon] NP desu -zo
This -top book copula -emphasis
"I'm telling you, this is a book!"
- (94) Kore-wa [hon] NP da -zo
This -top book copula -emphasis
"I'm telling you, this is really a book!"
- (95) Kore-wa [omosiroi] i-Adj -zo
This -top interesting -emphasis
"I'm telling you, this (is) interesting!."
- (96) *Kore-wa [kirei] Na-Adj -zo
This -top pretty -emphasis
"I'm telling you, this (is) pretty!"
- (97) Kore-wa [kirei] Na-Adj desu -zo
This -top pretty copula -emphasis
"I'm telling you, this is truly pretty!"
- (98) Kore-wa [kirei] Na-Adj da -zo
This -top pretty copula -emphasis
"I'm telling you, this is pretty!"
- (99) *[Yukkuri] Adv -zo
slowly -emphasis
"I'm telling you, slowly!"
- (100) [Yukkuri] Adv desu -zo
slowly copula -emphasis
"I'm telling you, slowly!"
- (101) [Yukkuri] Adv da -zo
slowly copula -emphasis
"I'm telling you, slowly!"
- (102) [Nomu] v -zo
drink -emphasis
"I AM going to drink!"

- (103) [Mado-kara Fujisan-ga mieru] s-zo
 (I) window from Mt. Fuji -sub can see -emphasis
 "I'm telling you, (I) can see Mt. Fuji from the window!"
- (104) [Mado-kara Fujisan-ga mienai] s -zo
 (I) window from Mt. Fuji -sub can not see -emphasis
 "I'm telling you, (I) can not see Mt. Fuji from the window!"

2.2.2.1.7. Subtype of emphatic: -no, softer emphatic/command with falling intonation

The SFP *-no* attaches at the end of fragments and sentences with falling intonation to indicate a soft emphatic or command. Similarly to *-zo*, *-no* can attach to an NP, *na*-adjective, and adverb only when followed by a plain or polite form of the copula verb. This *-no* is typically used by women.

- (105) *Kore-wa [hon] NP -no
 This -top book - emphatic
 "(Is) this a book (I'm telling you)."
- (106) Kore-wa [hon] NP na -no
 This -top book copula - emphatic
 "(Is) this a book (I'm telling you)."
- (107) Kore-wa [omosiroi] i-Adj -no
 This -top interesting -emphatic
 "(Is) this interesting (I'm telling you)."
- (108) Kore-wa [kirei] Na-Adj na -no
 This -top pretty copula -emphatic
 "This (is) pretty (I'm telling you)."
- (109) *[Yukkuri] Adv -no
 slowly -emphatic
 "(do/move it) slowly."
- (110) [Yukkuri] Adv -na -no
 slowly copula -Q
 "(do/move it) slowly."
 "(Does it do/move) slowly?"
- (111) [Nomu] v -no
 drink -emphatic
 "(You have to) drink"
- (112) [Mado-kara Fujisan-ga mieru] s -no
 window from Mt. Fuji -sub can see - emphatic
 "(I'm telling you, you) I can see Mt. Fuji from the window."

- (113) [Mado-kara Fujisan-ga mienai] s -no
 window from Mt. Fuji -sub can not see -emphatic
 “(I’m telling you, you) I can’t see Mt. Fuji from the window.”

2.2.2.1.8. Subtype emphatic: -mon, child/female soft emphatic/resentment

The SFP *-mon* attaches to all types of grammatical categories and sentences to indicate a soft emphatic or a resentful nuance. However, similar to *-wa* and *-zo*, *-mon* can attach to an NP, *na*-adjective, and adverb, only when followed by a plain or polite form of the copula verb. SFP *-mon* is typically used by women or children.

- (114) *Kore-wa [watashi-no] NP -mon
 This -top mine -resentment
 “This (is) mine (not yours).”
- (115) Kore-wa [watashi-non] NP desu -mon
 This -top mine copula -resentment
 “This (is) mine (not yours).”
- (116) Kore-wa [watashi-no] NP da -mon
 This -top mine copula -resentment
 “This (is) mine (not yours).”
- (117) Kore-wa [omoshiroi] i-Adj -mon
 This -top interesting -resentment
 “This (is) interesting (and I’m not wrong).”
- (118) *Kore-wa [kirei] Na-Adj -mon
 This -top pretty -resentment
 “This (is) pretty (and I’m not wrong).”
- (119) Kore-wa [kirei] Na-Adj desu -mon
 This -top pretty -resentment
 “This (is) pretty (and I’m not wrong).”
- (120) Kore-wa [kirei] Na-Adj da -mon
 This -top pretty -resentment
 “This (is) pretty (and I’m not wrong).”
- (121) *[Yukkuri] Adv -mon
 slowly -resentment
 “(It moves) slowly (and it’s not my fault).”
- (122) [Yukkuri] Adv desu -mon
 slowly -resentment
 “(It moves) slowly (and it’s not my fault).”
- (123) [Yukkuri] Adv da -mon
 slowly -resentment
 “(it moves) slowly (and it’s not my fault).”

- (124) [Nomu] v -mon
 drink -resentment
 "I am going to drink (so don't blame me)."
- (125) [Mado-kara Fujisan-ga mieru] s -mon
 (I) window from Mt. Fuji -sub can see -resentment
 "(I) can see Mt. Fuji from the window (and I am not lying)."
- (126) [Mado-kara Fujisan-ga mienai] s -mon
 (I) window from Mt. Fuji -sub can not see -emphasis
 "(I) can't see Mt. Fuji from the window (and it's your fault)."

2.2.2.1.9. Basic expecting agreement/conformation from the listener: -ne

When the speaker anticipates that the listener will agree or confirm his or her statement, the SFP *-ne* appears at the end of the sentence or a grammatical category of any type. SFP *-ne* is similar in meaning to "isn't it?," "right?," and "you know?" in English. Also, *-ne* can soften the nuance of an affirmative sentence. (In the Kansai area, *-na* is instead of *-ne*.)

- (127) Kore-wa [hon] NP -ne
 this -top book -seeking confirmation
 "This (is) a book, isn't it?"
- (128) Kore-wa [omoshiroi] i-Adj -ne
 this -top interesting - seeking confirmation
 "This (is) interesting, isn't it?"
- (129) Kore-wa [kirei] Na-Adj -ne
 This -top pretty -seeking confirmation
 "This (is) pretty, isn't it?"
- (130) [Yukkuri] Adv -ne
 slowly - seeking confirmation
 "(Please do something) slowly, ok?"
- (131) [Nomu] v -ne
 drink - seeking confirmation
 "(You) drink, right?"
- (132) [Mado-kara Fujisan-ga mieru] s -ne
 (window from Mt. Fuji -sub can see - seeking confirmation
 "(You) can see Mt. Fuji from the window, can't you?"
- (133) [Mado-kara Fujisan-ga mienai] s -ne
 window from Mt. Fuji -sub can not see - seeking confirmation
 "(You) can't see Mt. Fuji from the window, right?"

- (134) Ima sugu ofisu-ni kitekudasai -ne
 now right office -LOC come please - seeking confirmation
 "Please come to the office right away, ok?"

2.2.2.1.10. Subtype expecting agreement/confirmation from the listener: -na, male

The sentence final particle *-na* indicates the anticipation of agreement and confirmation by the listener just like *-ne*, and is usually used by men. It attaches to all types of grammatical categories and sentences and indicates emphasis similar to *-ne*. However, *-na* can attach only to an NP, *na*-adjective, or adverb which is followed by (a plain or polite form of) the copula verb.

- (135) *Kore-wa [hon] NP -na
 This -top book - seeking confirmation
 "This (is) a book, isn't it?"
- (136) Kore-wa [hon] NP desu -na
 this -top book copula - seeking confirmation
 "This (is) a book, isn't it?"
- (137) Kore-wa [hon] NP da -na
 This -top book copula - seeking confirmation
 "This (is) a book, isn't it?"
- (138) Kore-wa [omosiroi] i-Adj -na
 This -top interesting - seeking confirmation
 "This is interesting, isn't it?"
- (139) *Kore-wa [kirei] Adj -na
 This -top pretty - seeking confirmation
 "This (is) pretty, isn't it?"
- (140) Kore-wa [kirei] Na-Adj desu -na
 This -top pretty copula - seeking confirmation
 "This is pretty, isn't it?"
- (141) Kore-wa [kirei] Na-Adj da -na
 This -top pretty copula - seeking confirmation
 "This is pretty, isn't it?"
- (142) *[Yukkuri] Adv -na
 slowly - seeking confirmation
 "slowly, ok?"
- (143) [Yukkuri] Adv desu -na
 slowly copula - seeking confirmation
 "Slowly, ok?"

- (144) [Yukkuri] Adv da -na
slowly copula - seeking confirmation
"Slowly, ok?!"
- (145) [Nomu] v -na
drink - seeking confirmation
"(You do) drink, don't you?"
- (146) [Mado-kara Fujisan-ga mieru] s -na
window from Mt. Fuji -sub can see - seeking confirmation
"(You) can see Mt. Fuji from the window, can't you?"
- (147) [Mado-kara Fujisan-ga mienai] s -na
window from Mt. Fuji -sub can not see - seeking confirmation
"(You) can't see Mt. Fuji from the window, can you?"

The following Table 5 summarizes sentence final particles.

Basic Types	SFPs	Subtype of basic SFPs
Question	-ka Unisex Question	-kashira Female soft question/wonder/doubt
		-ka (with plain form of verbs) Male question
		-no Female soft question
Emphatic	-yo Unisex emphatic	-zo Male strong emphatic
		-wa Female/child soft emphatic
		-sa Male soft emphatic
		-no (with falling intonation) Female/child soft emphatic/command
		-mon Female/child soft emphatic/ resentment
Agreement/ confirmation	-ne Unisex agreement/ confirmation	-na Male expecting agreement/confirmation

Table 5 Summary of Sentence Final Particles

2.2.3. Case and focus particles

The following section discusses case markers and focus particles and their possible host(s). However, \emptyset (null) particles will be excluded from this discussion since the goal here is explore the nature of particles that can only be observed from their overt presence. The particles *-de*, *-no*, and *-to* are also excluded from the discussion of particle stacking since their behavior is not consistent with other particles in significant ways. Before turning to the general discussion of case and focus particles, I look more closely at these three exceptions.

According to Teramura (1991), the particle *-de* is a gerund, *-te* form, of the plain form of the copula verb *-desu*. The plain form of the copula verb can appear after NPs, *i*-adjectives, and adverbs and not after *na*-adjectives and verbs as shown below.

(148)

- a. Toshokan-da
library is
'(It) is (the) library.'
- b. Kirei-da .
pretty is
'(it) is pretty.'
- c. Yukkuri-da .
slowly is
'(It) is slow.'
- d. *Furui -da.
old is
'(It) is old.'
- e. *Taberu-da.
eat is

Particle *-de* exhibits exactly the same pattern as the gerund as shown below.

- (149) a. Toshokan-de benkyoo suru.
library at study
'(I) study at (the) library.'
- b. Kirei-de yokatta.
pretty good -past
'(It) is good that it is pretty.'

c. Yukkuri-de ii desu-kara untenshitekudasai.
 slowly good is since drive-please
 '(It) is ok to be slow, so please drive.'

d. *Furui -de aimashoo.
 old at meet-let us

e. *Resutoran Taberu-de .
 restaurant eat -at

If it is the case that the particle *-de* is a gerund, then *-de* is not a case marker or particle at all.

The phonological unit *-no* has two homophones: the genitive marker *-no* and the abstract pronoun *-no*¹⁵. Both *-no* are atypical when they are compared to other case markers and particles. The genitive marker *-no* takes only NPs as its host and it modifies the following noun, just like the English possessive 's, as in (150a). It can also iterate as in (150b). Also, the genitive marker attaches to pronouns and forms the English equivalent of absolute possessives, such as in (150c). None of the other case markers or particles modify the following noun or iterates like the genitive marker.

In addition, the other *-no*, the abstract pronoun, follows adjectives and verbs and nominalizes them as in (150d-f). A combination of both *-no*, i.e., a host/genitive-*-no* and abstract-*-no* unit, is also possible, as in (150f).

¹⁵ In general, one can distinguish the abstract pronoun and the particle by a substitution test. For example, the abstract pronoun *-no* in (i) and (ii) can be replaced with a noun, but the particle *-no*, as in (iii), cannot be replaced with a noun.

- i. Kawaii -fuku-o kudasai. (cf. example (150d))
 cute dress-ACC please give
 'Please give (me the) cute one.'
- ii. Osake-o nomu-koto-o yamerui. (cf. example (150e))
 sake-ACC drink-fact-ACC stop
 '(I) (will) stop that fact that (I) drink alcohols.'
- iii. *Kore-wa Watashi-inu inu-omocha omocha da. (cf. example (150a))
 this -TOP I dog toy toy copula

- (150) a. Kore-wa Watashi-no inu-no omocha da.
 this -TOP I -GEN dog-GEN toy is
 'Speaking of this, (this) is my dog's toy.'
- b. Toshi-mondai-no shinkokusa-no kongen-no naka-no ...
 town problem-GEN seriousness-GEN root-GEN inside-GEN
 '(The) town problem's seriousness' root's inside's....'
- c. [Watashi-no]NP.
 I -GEN
 'My.'
- d. Kawaii-no-o kudasai..
 cute -abstr-ACC please give
 'Please give (me the) cute one.'
- e. Osake-o nomu-no-o yamerui.
 sake -ACC drink-abstr-ACC stop
 '(I) (will) stop drinking alcohols.'
- f. Watashi-no-no -o totte kudasai.
 I -GEN-abstr-ACC take-gerund please
 '(Could you) take my stuff please .'

As seen in (150d) and (150e), it is apparent that the adjective and verb are nominalized by the abstract pronoun *-no* because the case marker *-o* is attached to them. Since the underlining constituent of the abstract pronoun *-no* is an NP, an independent word, as in (151d-e), it can be substituted with a noun. That is, the abstract pronoun *-no* is neither a case marker nor a particle.

- (151)
- d. Kawaii -fuku-o kudasai.
 cute dress-ACC please give
 'Please give (me the) cute one.'
- e. Osake-o nomu-koto-o yamerui.
 sake-ACC drink-fact-ACC stop
 '(I) (will) stop that fact that (I) drink alcohols.'
- f. Watashi-no-kaban -o totte kudasai.
 I -GEN-bag --ACC take-gerund please
 '(Could you) take my bag please .'

The particle *-to* seems to have three functions, (i) conjoining nominals into lists (like 'and'), (ii) acting as a complimentizer, and (iii) other. In (152a), *-to* connects

nouns¹⁶ and means ‘and’ or ‘with’. Sentences (152c-d) are examples of *-to* behaving as a complementizer where it attaches to nouns, adjectives, and sentences, to relativize the clause that contains them. Also, *-to* attaches to adverbs and onomatopoeic words to modify verbs, as in (152e) and (152f)

(152) *to*

- a. Sakana-to sarada-ga shujin-no koobutsu da.
 fish and/with salad NOM husband GEN favorite food is
 ‘Fish and/with salad are my husband’s favorite food.’
- b. [Kinokuniya -to iu honya]NP.
 that say bookstore
 ‘Bookstore that is called Kinokuniya.’
- c. Sono Koinu-wa kawaii -to omou.
 that puppy TOP cute that think
 ‘Speaking of that puppy, (I) think that it is cute.’
- d. Chichi-ga imasugu koi-to itta.
 my father-NOM right now come that said
 ‘My father said “Come right now.”’
- e. Toki-ga yukkuri-to fuku.
 time -NOM slowly pass
 ‘The time passes slowly.’
- f. Kirakira-to hikaru.
 onomatopoeia sparkle
 ‘(Something) sparkles’
- g. San-o mazeru-to baku-hatsushita.
 acid ACC mix then explode-past
 ‘When (I) mixed acid, it exploded.’

In addition, *-to* can attach to a sentence, such as in (152g), to express cause and effect. *-to* in examples (152e) and (152f) is clearly different from a nominal conjoining particle and complementizer, but it is difficult to define exactly what it is¹⁷.

¹⁶ *-to* is generally classified as a nominal conjoining particle, along with particles such as, *-ya*, *-ka*, *-yara*, and *-toka*.

¹⁷ They are a large number of different kinds of onomatopoeia in Japanese (compared to English) and they belong to one of the three classes: (i). sounds, (ii). physical sensations and states, and (iii). psychological states. An observation here is that when *-to* attaches to an onomatopoeia expression, the resulting construction, appear to behave like an adverb. Examples follow.

Because of the reasons discussed above, particles *-de*, *-no*, and *to*, are fundamentally different from the other particles. They should be studied further in the future, but I will exclude them from the following stacking discussion.

2.2.4. Case markers and focus particles

Table 6 shows case and focus particles and their possible host(s) from Vance (1993).

Host				Particle
NP	Adj.	Adv.	VP	
✓				-ga (が)
✓				-o (を)
✓				-ni に (ni)
✓	✓		✓	-kara (から)
✓		✓	✓	-made (まで)
✓	✓		✓	-wa (は)
✓	✓		✓	-mo (も)
✓	✓		✓	-koso (こそ)
✓	✓		✓	-sae (さえ)
✓			✓	-shika (しか)
✓	✓		✓	-dake (だけ)
✓		✓	✓	-sura (すら)
✓		✓	✓	-demo (でも)
✓	✓		✓	-bakari (ばかり)
✓	✓		✓	-nado (など)
✓	✓		✓	-nanka (なんか)

Table 6 Host (s) of Case and Focus Particles
 ✓ mark indicates the possible host

-
- (i) Kane-ga boon-to naru. (boon <sound>
 bell -NOM boom ring
 'The bell rings (in the way that it sounds boom)
 - (ii) Yuki-ga samuzamu-to furu. (samuzamu <physical sensations and states=cold cold>
 snow-NOM cold cold fall
 snow falls shiveringly.
 - (iii) Furo-ni haittara sappari-to shita. (sappari <psychological states=refreshed feelings>
 bath to enter after refresh did
 "After taking bath, (I) felt refreshed."

The first thing to notice is that only *-ga*, *-o*, and *-ni* take NPs¹⁸ as their host exclusively, while the other particles take NP, Adj, Adv, and/or VP as well. Examples of each particle follow below.

The particle *-kara* takes NPs, adverbs, adjectives, and verbs as its host. It takes NPs as the host to indicate ‘from’ in (153a) and takes adjectives and verbs to indicate reasons or cause, such as in (153b) and (153d). Also, the particle *-kara* can follow the *te*-form and the plain form of verbs.

(153) *kara*

a. Tokyo-kara Kobe-made iku.

from until go
‘(One) goes from Tokyo to Kobe.’

b. Kyoo-wa samui-kara sanpo-ni ikani

Today-TOP cold since walking-LOC go-neg.
‘Since it is cold today, I will not go for a walk.’

c. Tokyo-ni itte-kara riyuu-ga wakatta.

-LOC go-gerund-after reason-NOM understand-past
‘(I) understood (the) reason after I went to Tokyo.’

d. Tokyo-ni iku-kara kaigi-ni-wa ikenai.

- LOC go since meeting-to-contrast go-potential-neg
‘Since (I) will go to Tokyo, I cannot attend the meeting.’

The particle *-made* indicates the meaning of ‘until’ and takes NPs, adverbs, and verbs as host.

¹⁸ Japanese NPs have at least the following two properties according to Tsujimura (1996):

1. Only nouns and NPs can be connected with the genitive marker *-no* to form a larger NP.

[nihongo]NP Japanese ‘Japanese book’	[hon]NP book	[nihongo-no hon]NP Japanese-GEN book
[yasui]i-Adj cheep	[hon]NP	[yasui hon]NP cheep book *[yasui-no hon]
[kireina]na-Adj clean	[hon]NP	[kireina hon]NP clean book *[kireina-no hon]

2. When an NP occurs with a copula verb, it has *-da* (present)/*-datta* (past) conjugation in plain form.

[hon]NP *-da/datta*.
[yasui]i-Adj *-i/katta*.
[kirei]na-Adj *-da/datta*.

Note: *na*-adjective ends with *-da/datta* but cannot form an NP with a genitive marker.

(154) *made*

- a. Tokyo-kara Kobe-made iku.
from until go
'(One) goes from Tokyo to Kobe.'
- b. Asa hayaku-kara yoru osoku-made hataraku.
morning early-from night late-until work
'(One) work from early in the morning until late at night.'
- c. Tokyo-ni iku-made riyuu-o shiranakatta.
DAT go until reason-ACC know-past
'(I) didn't know the reason until I arrived Tokyo.'

The particles *-wa*, *-mo*, *-koso*, and *-sae* behave as a group. That is, any of the four particles can interchangeably take the same host, as in (155). They can take NPs, many [NP-particle] units, adjectives, and the *-te* form of verbs as host.

The particle *-wa* attached to a sentence initial NP indicates 'topic', while it indicates 'contrast' when it attaches to an NP within a sentence. The particle *-mo* indicates 'also', *-koso* 'emphasis', and *-sae* 'even'.

(155) *wa*, *mo*, *koso*, and *sae*

- a. Kono shima-wa/mo/koso/sae ookii.
this island -TOP/also/emph/even big (is)
'Speaking of this island, it is big.' (Topic reading)
'This island is also/emphasis/even big.'
- b. Takara-ga kono shima-ni-wa/mo/koso/sae aru.
treasure-NOM this island -LOC- contrast/also/emph/even exist
'(The) treasure exists on this island (but not the other island).' (Contrastive *-wa*)
'(The) treasure also/emphasis/even exists on this island.'
- c. Kaguyahime -wa utsukushiku-wa nai rashii.
princess Kaguya-TOP beautiful- contrast neg appear to be
'Speaking of princess Kaguya, (I have heard) (she) is not beautiful.' (contrastive *-wa*)
- c'. Kaguyahime-wa utsukushiku-mo/koso/sae aru rashii.
princess Kaguya-TOP beautiful also/emph/even appear to be
'Speaking of princess Kaguya, (I have heard) (she) is also/emphasis/even beautiful.'
- d. Sono kao-wa waratte-wa/mo/koso/sae ita ga me-wa ikari-ni michiteita.
that face-TOP laugh-te-contrast/also/emph/even is-past but eyes-contrast anger-DET filled-perf-past
'Speaking of that face, it was/also/emph/even smiling, but the eyes have been filled with anger.'

The particle *-shika* and *-dake* both mean ‘only’, but *-shika* requires a negated verb. It takes NPs, NP-particle units, and the plain form of verbs as its host and indicates the meaning ‘nothing but’ or ‘only but’.

(156) *shika*

- a. Yoshida ke-no kodomo-wa ryoori-shika dekinai.
 Yoshida family-GEN children-TOP cooking nothing but able -neg
 ‘Speaking of Yoshidas’ children, they cannot do anything but cooking.’
- b. Fujisan-wa nihon-ni-shika nai.
 Mt. Fuji -TOP Japan-LOC-only but exist-no
 ‘Speaking of Mt.Fuji, it does not exist anywhere but in Japan.’
- c. Aitsu-wa bennkyosuru-shika nou-ga nai.
 He -TOP study only but skill -NOM exist-neg
 ‘Speaking of him, he does not have any skill but to study.’

The particle *-dake* takes NPs, NP-particle units, adjectives, and the plain form of verbs as the host to indicate ‘only’.

(157) *dake*

- a. Suupaa-de pan-dake katta.
 supermarket-at bread-only buy-past
 ‘I only bought (the) bread at (the) supermarket’
- b. Kono chokoreeto-wa A&P-ni-dake aru.
 this chocolate -TOP -LOC-only exist
 ‘Speaking of this chocolate, (you can) only find (it) at A&P (supermarket).’
- c. Kanojo-wa kireina-dake-de zenzen yasashikunai.
 she -TOP pretty only -gerund at all kind -neg
 ‘Speaking of that person, she is only pretty and not a kind (person) at all.’
- d. Bideo-o Miru-dake nara ii deshoo.
 video-ACC look only if good is-probably
 ‘It is probably ok if (you) only watch the video.’

The particle *-sura* often appears with negated verbs. It takes NPs and NP-particle units as its host and indicates the meaning ‘even’.

(158) *sura*

- a. Yoshida ke-no kodomo-wa ryoori-sura dekinai.
 Yoshida family-GEN children-TOP cooking even able-neg
 ‘Speaking of Yoshidas’ children, they cannot even cook.’

- b. Sushi-wa amerika-de-sura takai.
sushi -TOP America -at -even expensive
'Speaking of sushi, (it is) even expensive in America.'
- c. ?Hiruyasumi-wa yukkuri-sura dekinai.
lunch break -TOP slowly even t do-potential-neg
'Speaking of lunch break, (I) cannot even take it easy.'
- c'. Hiruyasumi-wa [yukkurisru koto]-sura dekinai.
lunch break -TOP to take it slow thing even t do-potential-neg
'Speaking of lunch break, (I) cannot even take it easy.'

The particle *-sura* possibly takes adverbs as its host, as in (158c), although the nominalized (158c') sounds much better than (158c).

The particle *-demo*¹⁹ takes NPs, NP-particle units, adverbs, and verbs as its host to indicate the meaning 'even'.

(159) *demo*

- a. inu-demo hito-no iukoto-ga wataru-yo.
dog even person-ACC say thing-NOM understand -emp
'Even a dog can understand what human are saying.'
- b. Ryokoo-ni iku nara hawai-ni-demo ikeba?
travel to go if Hawaii to even go-if
'If (you) wan to go for a trip, (why don you) even go to Hawaii or (some place)?'
- c. Yukkuri-demo ii-kara untenshitekudasai.
Slowly even ok since drive please
'(it) is even ok to be slow, so please drive.'
- d. Sake-o non-demo iidesu-yo.
sake-acc drink-even ok is-emp
'it is even ok (for you) to drink sake.'

The particle *-bakari* attaches to NP, adjectives, and verbs, to indicate 'only' or 'just'.

(160) *bakari*

- a. Terebi-bakari minai-de benkyoo shinasai.
TV -only watch-neg-gerund studying do
'Don't only watch the TV (all the time) and study'
- b. Kanojo-wa kireina-bakari -de zenzen yasashikunai.
She -TOP pretty -gerund at all kind -neg
'Speaking of that person, she is only pretty and not kind at all.'

¹⁹ Teramura (1991) suggests that *-demo* is combination of *-de* (*-te* form of copula verb 'desu') and particle *-mo*. If this is the case, *-demo* should be considered as particle *-mo* attaching to the copula.

c. Shacho-wa sake-o nonde-bakari da.
president -TOP alcohol -ACC drink-only is
'Speaking of the company president, he drinks only but alcohol.'

d. Shujin-wa Kaettekita-bakari desu.
husband-TOP returned -just now is
'Speaking of my husband, (he) has just returned.'

The particle *-nado* attaches to NPs, adjectives, and verbs to indicate a non-exhaustive listing of items or the emphasis like 'even'.

(161) *nado*

a. Suupaa-de pan-nado katta.
supermarket-at bread and etc. buy-past
'I bought (the) bread and other things at (the) supermarket'

b. Atsuku-nado nai.
hot even neg
'(It) is not even hot.'

c. Ugaisuru-nado shite kaze-wo yoboosuru.
gargle etc. do influenza-ACC prevent
'Do gargling or something to prevent flue.'

The particle *-nanka* takes NPs, adjectives, and the *te*-form of verbs as its host to indicate emphasis, 'such a thing' or 'even'.

(162) *nanka*

a. Okane-nanka iranai.
money such a thing need-neg
'I don't need such a thing as money'

b. Samuku-nanka nai.
cold even neg
'(I) am not even cold.'

b. Nete-nanka-wa inai.
sleep-gernd such a thing-TOP exist- neg
'Speaking of sleeping, (I) am not doing such a thing.'

In this section, individual particles and their possible host(s) have been examined. It is apparent that particles can be divided into two groups: (i)-*ga*, *-o*, and *-ni* and (ii) others. Particles in the first group only appear on NPs, whereas particles in the latter

group have a rather wide range of host selection (the details of which are not discussed in this dissertation because they are not relevant to the planned research).

Since the particle *-ga*, *-o*, and *-ni* are different from other particles, from now on I will refer them 'case markers' while continuing to refer to the remaining particles as 'particles'.

2.3. Stacking

Certain SFPs, case markers, and particles can be followed by other SFPs, case markers, or particles, i.e., they can be "stacked." In order to understand the nature of the host-particle unit, stacking patterns of [SFP/SFP], [case marker or particle/SFP], [case marker/case marker], [case marker/particle], [particle/case marker], and [particle/particle] will now be discussed.

2.3.1. [SFP/SFP] stacking

Sentence final particles can be stacked with other SFPs if their meanings and function do not overlap. For example, stacking *-ka* and *-kana* or *-kashira* is not possible since the basic function of *-ka* is to indicate a question and *-kana* and *-kara* are both subtypes of *-ka*.

(163) Koohii-o nomimasu.
coffee -Acc drink
"(I) drink coffee".

(164) *Koohii-o nomimasu-ka-kana.
coffee -Acc drink -Q -I wonder
"Do (you) drink coffee, I wonder".

Likewise, stacking *-ne* and *-na* is impossible since *-ne* and *-na* both express the expectation of agreement/confirmation.

- (165) kirei -desu -ne
 pretty copula - seeking confirmation
 "(This is) pretty, isn't it"
- (166) *kirei -desu -ne -na
 pretty copula - seeking confirmation - seeking confirmation
 "(This is) pretty, isn't it, right?"

On the other hand, SFPs with different meanings and functions can be combined. For example, *-wa*, *-yo*, and *-ne* can be stacked.

- (167) Kore-wa hon -yo -ne
 This -top book -soft insertion - seeking confirmation
 "This (is) a book, am I right !?"
- (168) Kore-wa hon desu -wa -yo -ne
 This -top book copula -soft insertion -emphatic - seeking confirmation
 "I suppose this (is) a book, am I right !?"

However, *-ne* cannot be followed by any other SFP²⁰.

- (169) *Kore-wa hon desu -wa -ne -yo
 This -top book copula -soft insertion - seeking confirmation -emphatic
 "I suppose this (is) a book, am I right !?"

2.3.2. [Case marker or other particle/SFP] stacking

When it comes to stacking case marker and other particle with SFPs, a SFP can follow anything as long as it appears at the end of sentence or before a long pause²¹.

- (170) Kore-wa-ne...kinyoobi-ni -sa...shite -yo
 this -top -confirmation no Friday -on -emphatic do -emphatic
 "This (one), you know, ...(not other day but) do it on Friday!"

²⁰There seems to be a general rule that no particle follows SFP-*ne*.

²¹ For some speakers, typically children (or childish adults) *-ne* and *-yo* (or the subtypes of *-ne* or *-yo*) are used after many phrases within a single sentence. For example, the following sentence carries the feeling of an English speaker who inserts "you know" often in his or her speech.

Watashi-ga-ne, kono make-ne, attano-wa-ne, yoshidasan-na-no.
 I -nom-confirmation -top the other day-confirmation met-Top -confirmation Mr. Yoshida -soft emphasis
 "You know, the other day, you know, met was, you know, Mr. Yoshida!"

2.3.3. [Case marker/case marker] stacking

Now the discussion turns to case marker stacking. Case markers seem to close off a noun phrase, i.e., [case marker/case marker] stacking is impossible. For example, (172) and (173) show that the case marker *-o* cannot be followed by itself or stacked with another case marker.

(171) *Watashi-wa sakana-o tabeta.*
 I -TOP fish -ACC eat
 'I ate fish.'

(172) **Watashi-wa sakana-o-ga tabeta.*
 I -TOP fish -ACC-NOM eat

(173) **Watashi-wa sakana-o-o tabeta.*
 I -TOP fish -ACC-ACC eat

Similar to accusative marker stacking, no case markers can be followed by itself or by any other case markers, as illustrated in Table 7 .

	ga	o	ni
ga	X	X	X
o	X	X	X
ni	X	X	X

Table 7 Case Marker Stacking

X indicates that the case markers on the very left column cannot be followed by the other case marker in the top cells.

2.3.4. [Case marker/particle] stacking

Similar to what is found in 2.3.1.1., when [case marker/particle] combinations are examined, case markers cannot be followed by any particles, as illustrated below in Table 8 .

	は wa	も mo	しか shika	すら sura	でも demo	から kara	まで made	こそ koso	さえ sae	だけ dake	ばかり baka ri	など nado	なんか nanka
ga	X	X	X	X	X	X	X	X	X	X	X	X	X
o	X	X	X	X	X	X	X	X	X	X	X	X	X
ni	X	X	X	X	X	X	X	X	X	X	X	X	X

Table 8 [Case marker/Particle] Stacking

X indicates that the case markers on the very left column cannot be followed by the other case marker in the top cells

For example, nominative marker-*ga* cannot be followed by any particles.

(174) *Hon-ga(wa/mo/shika/sura/kara/made/koso/sae/dake/bakari/nado/nanka) aru.
 book-NOM top also only even from until even even only only etc. even. exist

This coincides with observations made by many Japanese grammarians (e.g., Teramura 1991).

2.3.5. [Particle/case marker] stacking

Contrary to what we observed with [case marker/particle] stacking, however, when [particle/case marker] constructions are examined, case markers can follow many particles as illustrated in Table 9. Examples follow.

	ga	o	ni
wa (は)	X	X	X
mo (も)	X	X	X
shika(しか)	X	X	X
sura (すら)	X	X	X
demo (でも)	X	X	X
kara (から) ²²	✓	✓	✓
made (まで)	✓	✓	✓
koso (こそ)	✓	✓	✓
sae (さえ)	✓	✓	✓
dake (だけ)	✓	✓	✓
bakari (ばかり)	✓	✓	✓
nado(など)	✓	✓	✓
nanka (なんか)	✓	✓	✓

Table 9 [Particle/Case Marker] Stacking

Stacking left column can be followed by case marker showed on the top of each column.

(175) *wa/mo/sura/shika/demo*

a. Sore -(wa/mo/sura/shika/demo)- Ø nai.
 that top also even only even exist-neg
 'speaking of it, it does not exist' (topicalized)
 'it also/even/only does not exist.'

b. *Sore -(wa/mo/sura/shika/demo) -(ga/o/ni) nai.
 that top also even only even NOM ACC DAT

(176) *kara*

Hikooki-ni noru-nara Narita-kara-ga ii.
 airplane -DAT ride-if -from -NOM good
 'If (you are going to) to ride an airplane, (going) from Narita Int'l airport is good.'

²² I believe that when some particles, in particular, *kara* and *made*, are followed by a case marker it is not so clear if the case markers are directly attached to the particle.

(a). Hikooki-ni noru-nara Narita-kara-ga ii.
 airplane -DAT ride-if -from -NOM good
 'If (you are going to) to ride an airplane, (going) from Narita Int'l airport is good.'

(b). Hikooki-ni noru-nara Narita-kara (iku-no)-ga ii.
 airplane -DAT ride-if -from -NOM good
 'If (you are going to) to ride an airplane, going from Narita Int'l airport is good.'

Since an understood element can often be omitted in Japanese, it may be the case that the nominalized verb is deleted between the particle and the case markers. Although I have not looked into many different structures, it seems the structure of *~ga ii*, may be licensing this omission.

Hokkaido-wa sakana-nado (taberu-no)-ga ii.
 -TOP fish etc -NOM good
 'Speaking of Hokkaido, (that area) has good seafood.'

- (177) *made*
Kugatsu-made-o kigenda to kimeta.
 September until -ACC deadline that decide-past
 '(I) decided that the deadline is until September.'
- (178) *koso*
Kyoo-koso-ga kinen-o hajimeru hi da.
 today emph -NOM stop-smoking-ACC start day is
 'Today is the day to stop smoking!'
- (179) *sae*
Tomodachi-sae-o uragitta.
 friend even-ACC betray-past
 '(I) even betrayed (my) friend'.
- (180) *dake*
Kimi-dake-ga tayori da.
 you only-NOM reliable is
 'You are the only one (i) can rely on.'
- (181) *bakari*
Terebi-bakari-o miteiru to me-ga warukunaru.
 TV only -ACC watch-gerund that eye-NOM becomes bad
 'If you watch TV all the time, the eye (cite) gets bad.'
- (182) *made*
Kuji-made-ni keattekite kudasai.
 9 o'clock until to return-gerund come please
 'Please come back until 9 o'clock.'
- (183) *nado*
 Hokkaido-wa sakana-nado-ga oishii.
 -TOP fish etc -NOM tasty
 'Speaking of Hokkaido, (that area) has tasty fish and other stuff.'
- (184) *nanka*
 Sono hiryo-wa bara-no hana-nanka-ni yaru-to iisooda.
 that plant-food-TOP roses-GEN flower-such as-DET give that good I heard
 'Speaking of that plant food, I've heard that is good to give to flowers such as roses.'

Generalizing over the observations made here, we conclude that there are four categories of particles, SFPs, case markers, and two categories of other particles. These are summarized in the Table 10. The other particles are divided into two types based on their distributions: Type 1 particles *-kara*, *-made*, *-koso*, *-sae*, *-dake*, *-bakari*, *-nado*, and *-nanka*, which can be followed by any case marker and Type 2 particles such as *-wa*, *-mo*, *-shika*, *-sura*, and *-demo*, which cannot be followed by any case marker.

Particle categories		Characteristics
Sentence Final Particles	<i>yo</i> <i>ka</i> <i>ne</i> (and other subtypes, such as <i>zo, sa, no, mon, na, kashira</i>)	attaches only to sentence
Case markers	<i>ga</i> (nom) <i>o</i> (acc) <i>ni</i> (dat)	attaches only to NPs
Type 1 Particles	<i>ni</i> (loc) <i>dake</i> <i>bakari</i> <i>nado</i> <i>nanka</i> <i>made</i> <i>kosi</i> <i>sae</i>	can be followed by any case marker
Type 2 Particles	<i>wa</i> <i>mo</i> <i>koso</i> <i>sura</i> <i>shika</i> <i>demo</i>	cannot be followed by any case marker

Table 10 Particle Categories

2.3.5. Further observations on Type 1 particles

Assuming that case markers only attach to NPs, we can use this fact to test whether a constituent is an NP²³ or not. That is, we can assume that the constituents

²³ Based on the properties of NPs (see Footnote 18), we can test if [host/Type 1 particle] units are really NPs. All of the examples in (185) to (188) pass the NP test.

- (i) [yasai-dake]-no [hon]NP-*da/datta*.
cheep-only-GEN book was
'(It) was (the) book that is only cheep'
- (ii) [miru-dake]-no [hi]NP-*da/datta*.
look only-GEN day was
'(It) was (the)day that (I) only watch'
- (iii) [bideo-o ippon miru-dake]-no [hi]NP-*da/datta*.
video -ACC one look only -GEN day was
'(It) was (the) day that (I) only watch one video'

that case markers attach to are NPs so that a [host/Type 1 particle] constituent is actually an NP. For example, a case marker attaches to an NP-*dake* in (185) and a verb-*dake* in (186).

(185) [yasai-dake]-o taberu.
vegetable-only-ACC eat
'(I) will only eat vegetable.'

(186) Ashita tesuto-ga aru node, Bideo-o ippon [miru-dake]-ga ii deshoo.
tomorrow test -NOM exist since video one look -only -NOM good is-probably
'Since (I) have a test tomorrow, it is probably good to only watch one video.'

Furthermore, since Japanese has SOV word order, when a Type 1 particle attaches to a VP, the scope of the particle is not limited to the verb, but potentially to the entire clause. For instance, *-dake* can attach to a complete sentence (186), and nominalizes it because the nominative marker *-ga* attaches to the entire constituent in the brackets in (186).

(187) Bideo-o ippon miru.
video-ACC one watch
'(I will) watch one video.'

(188) [Bideo-o ippon miru-dake]-ga ii desu.
video -ACC one look only -NOM good is
'watching only one video is better.'

The string inside of (186) has to be a constituent since it can be substituted with the Wh-word *nani* 'what', as in (189), and the sentence becomes ungrammatical when the constituent is broken, as in (190).

(189) Nani-ga ii-desu ka?
what-NOM good is question
'what is good?'

(190) *Bideo-o nani-ga ii-desu ka?
video-ACC good is question

This suggests that the constituent in the brackets in (188) is an NP. The syntactic nature of this host-particle unit, which is often considered to be a post-positional phrase, is actually an NP.

2.3.7. [Particle/particle] stacking

Let us look at the distribution of particle-particle stacking. The pattern of possible particle stacking is shown in Table 11. Examples follow.

	は	も	しか	すら	でも	に ／ へ	から	まで	こそ	さえ	だけ	ばかり	など	なんか
wa (は)		X	X	X	X	X	X	X	X	X	X	X	X	X
mo (も)	X		X	X	X	X	X	X	X	X	X	X	X	X
shika (しか)	X	X		X	X	X	X	X	X	X	X	X	X	X
sura (すら)	X	X	X		X	X	X	X	X	X	X	X	X	X
demo (でも)	X	X	X	X		X	X	X	X	X	X	X	X	X
ni/e (に/へ) LOC	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓
kara (から)	✓	✓	✓	✓	✓			X	✓	✓	✓	✓	✓	✓
made(まで)	✓	✓	X	✓	✓	✓	X		✓	✓	✓	✓	✓	✓
koso (こそ)	✓		X	X	X	X	X	X		X	X	X	X	X
sae (さえ)	X	✓	X	X	X	X	X	X	X		X	X	X	X
dake (だけ)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
bakari (ばかり)	✓	✓	✓	✓	✓	✓	✓		✓		✓		✓	✓
nado (など)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
nanka (なんか)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Table 11 [Particle/Particle] Stacking

✓ indicates a particles in the very left column can be followed by particle in the top cells.

Particles *-wa*, *-mo*, *-shika*, *-sura*, and *-demo* cannot be followed by any particles, whereas other particles can be followed by other particles.

(191) *wa/mo/sura/shika/demo*

a. Mary *-(wa/mo/sura/shika/demo)* Tokyo-de au.

top also even only even -at meet

'Speaking of Mary, she will meet (someone) in Tokyo' (topicalized)

'Mary will also/even/only meet in Tokyo.'

b. *Mary *-(wa/mo/sura/shika/demo)* *-(ga/o/ni)* Tokyo-de au.

top also even only even NOM ACC DAT -at meet

(192) *ni*

California-*ni*-koso kin-ga aru.

-at-emp gold-NOM exist

'Gold does exist in California!.'

- (193) *kara*
 Hikooki-wa Narita-kara-mo shuppatsu shiteiru.
 airplane -TOP from also leaving do -rig
 'A plane is also leaving from Narita airport.'
- (194) *made*
Kugatsu-made-demo hataraitte kudasai.
 September until -even work-gerund please
 'Please work even until September.'
- (195) *koso*
kyoo-koso-wa kinen-o hajimeru hi da.
 today emph -TOP stop-smoking-ACC start day is
 'Speaking of today, it is the day to stop smoking!'
- (196) *sae*
Tomodachi-sae-mo uragitta.
 friend emp-also betray-past
 '(I) did also betray (my) friend.'
- (197) *dake*
Tokyo-dake-shika shiranai.
 only nothing but know-neg
 '(I) only know nothing but Tokyo.'
- (198) *bakari*
Sinpai-bakari-nado shinaide kudasai.
 worry only etc. do-neg-gerund please
 'Please do not worry.'
- (199) *made*
 Hittoraa-wa seisho-made-sae yaita.
 Hitler-TOP bible until even burn-past
 'Speaking of Hitler, he even burned the bible!'
- (200) *nado*
Hiruma-nado-kara nete-wa ikenai.
 daytime etc from sleep-gerund-cont must not
 '(You) should not sleep during daytime.'
- (201) *nanka*
 Asonde-nanka-bakari irarenai.
 play- etc -only exit-net
 '(I) cannot be goofing around.'

In sum, the host and case marker and particle stacking patterns are discussed in this section, and the following generalizations noted.

Case marker markers (-*ga*, -*ni*, and -*o*) cannot be stacked with themselves, with other case markers, or with any other particle.

Particle split into two types based on what can follow. Neither type of particle can be stacked with itself, but Type 1 particles (locative *-ni*, *-made*, *-koso*, *-sae*, *-dake*, *-bakari*, *-nado*, and *-nanka*) can be followed by a case marker and particle or multiple particles²⁴. I assume [host/Type 1 particle] units to be an NP since case markers only attach to NPs. On the other hand, Type 2 particles (*-wa*, *-mo*, *-shika*, *-sura*, and *-demo*) cannot be followed by case markers or particles, resembling the behavior of case markers.

In the next section, I will discuss possible syntactic representations of various case markers and particle stacking of Type 1 particles to further analyze the differences between the two particle groups.

2.4. Syntactic representations of particles

In this section, possible syntactic representations of case markers and particles as well as stacking will be examined. Since SFPs do not select any particular constituent as their host, they will be excluded from this discussion.

The following discussion is divided into three parts. The first part reviews four different analyses of case markers and particles: syntactic analyses by Miyagawa (1989) and Whitman (2001), a semantic analysis by McClure (2004), and a lexical approach by Sells (1995). Then, I will extend Miyagawa and Whitman's analyses to consider the possible syntactic structures of: (i) [NP/case marker], (ii) [host/particle], (iii)

²⁴ Although this is just an observation, as long as the semantics of the particles make logical sense, multiple particle stacking seems to be possible. For example, (i) is grammatical since the meaning of the particles in (i) contributes to the meaning of the sentence. However, (ii) is ungrammatical since the sentence is not logical, i.e., the host *Tokyo* cannot be the source and destination of impact at the same time.

(i) Jishin-no shoogeki-wa Tokyo-made-sae-ni tsutawatta.
 earthquake-ACC impact-TOP -until -even -LOC transmit-past
 'Speaking of the impact of earthquake, it transmitted even to Tokyo.'

(ii) *Jishin-no shoogeki-wa Tokyo-made-kara tsutawatta.
 earthquake-ACC impact-TOP-until -from transmit-past

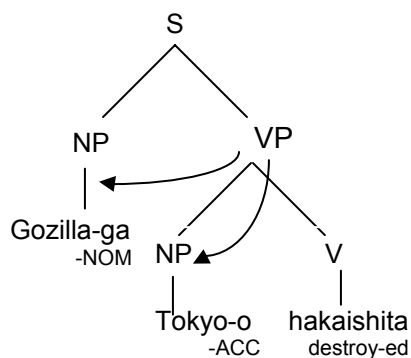
[host/particle/particle], (iv) [host/particle/case marker], and (v) [host/case marker/particle].

Finally, I will discuss a possible analysis of Type 2 particle structure.

2.4.1. Miyagawa's (1989) analysis of case markers and particles

Miyagawa divides Japanese particles into case markers (*-ga*, *-o*, and *-ni*), which he considers to be clitics, and post-positions (*-ni*, *-kara*, etc.) based on an argument and adjunct distinction. The argument and adjunct distinction can be made by different sources of the assigned θ -role. A θ -role or thematic relation is inherently assigned by the verb to an argument NP, as in (202). On the other hand, an NP in an adjunct does not have a thematic relation with the verb, and cannot receive a θ -role from the verb. Thus, a θ -role is assumed to be assigned directly from the post-position to the adjunct NP, as in the direct passive sentence (203).

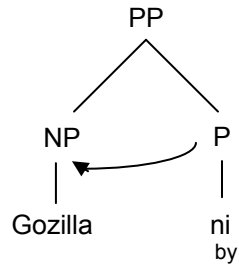
(202)



'Gozilla destroyed Tokyo'

The arrows indicate θ -role assignments

(203)



The arrow indicates θ -role assignments

Miyagawa defines a particle in an adjunct as a post-position, whereas the particles (namely the nominative marker *-ga*, accusative marker *-o*, and dative maker *-ni* with di-transitive verb) that attach onto an NP in an argument are clitics. Although Miyagawa (1989) convincingly illustrates²⁵ the distinctive nature of arguments and adjuncts in Japanese, some essential details are lacking. Miyagawa does not offer any rationale or syntactic analysis explaining why the arguments/adjuncts distinction entails

²⁵ Miyagawa uses the following facts of quantifier floating to support the distinction between case markers and post-positions. In Japanese, a numeral quantifier, which is composed of a numeral and a classifier (an adverb) that agrees with the type of the modified noun, has to accompany the noun to specify its number or quantity. For example, the classifier *satsu* ('bound volume') in (i) agrees with the noun *hon* ('book'). In (i), the classifier [3 ken] can be preposed as in (ib) or floated as in (ic), whereas preposing and floating as in (iib) and (iic) are not allowed.

- | | |
|--|---|
| <p>(ii) 'three books'</p> <p>a. NP/DP internal
[hon-3.satu-o]
book-3.volume-ACC</p> <p>b. preposed/scrambled
3.satu [hon-o]
3 volume book-ACC</p> <p>c. Floated, adverbial
[hon -o] ...3.satsu
book-ACC 3.volume</p> | <p>(ii) 'at three stores'</p> <p>a. NP/PP internal
[mise-3.ken-de]
store-3.building-at</p> <p>b. preposed/scrambled
*3. ken [mise-de]
3 building store-at</p> <p>c. Floated, adverbial
*[mise -de] ...3.ken
store-at 3.building
(McClure 2004, p.1-2)</p> |
|--|---|

Miyagawa (1989) explains this by assuming that arguments and adjuncts are syntactically distinct. He assumes that (1b) and (1c) are grammatical since the argument particles do not project in syntax, enabling a mutual c-commanding relationship between the classifier and an NP (or its trace). On the other hand, (2b) and (2c) are ungrammatical since the particles appear in adjunct project in syntax prohibiting the mutual c-commanding relationship.

Although the ternary branching tree structure which Miyagawa uses to explain mutual c-commanding relationship between a numeral quantifier and its antecedent is peculiar, I will not discuss it in this paper since it is not relevant to the nature of particles.

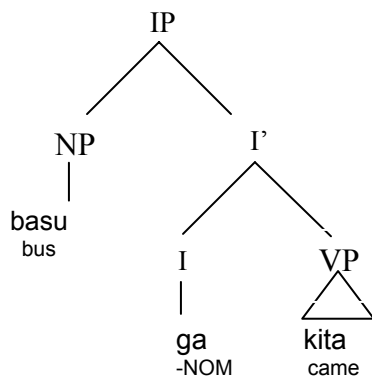
a clitics/post-position distinction. Also, he only discusses three post-positions, *-ni*, *-de*, and *-made*, so that his analysis of the other post-positions as well as his analysis of case stacking is unknown. Since a post-position can be stacked with a case marker on an argument NP, his analysis of post-positions is at best incomplete.

2.4.2. Whitman's (2001) analysis of case markers and particles

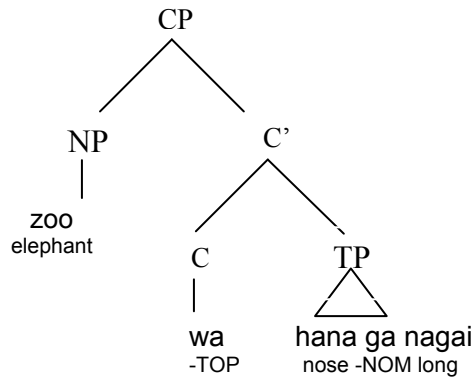
Another hypothesis is presented in Whitman (2001). He assumes that the topic marker *-wa* and case marker *-ga* (and presumably accusative *-o*, and dative *-ni*) in Japanese are “head projections taking complements on their right” (Whitman, p.78). On the other hand (although Whitman does not express his position on the status of particles), he would appear to agree with Vance's (1993) analysis and treats other particles as clitics.

Under these assumptions, the nominative *-ga* and topic marker *-wa* (and possibly the accusative marker *-o*) are phrasal heads I and C shown in (204) and (205).

(204)



(205)



(Whitman 2001, p.78)

Whitman's motivation for this analysis is that the restrictions on case stacking, scrambling, negative polarity items, and multiple nominative subject constructions are better described when the nominative marker and topic marker are viewed as functional heads.

When *-ga* and *-wa* are analyzed as clausal heads, the inability to stack *-wa/ga* and other particles can be easily explained if one assumes that particles follow only phrases and not functional heads.

(206) a. John-*ga* (**wa*/**mo*/**sae*) *kita*

-NOM TOP/also/even came

b. John-*wa* (**ga*/**mo*/**sae*) *kita*

-TOP NOM/also/even came
'John(TOP/even/also) came.'

(207) a. Mary-*wa* John-*ni* (*wa*/*mo*/*sae*) *ko-saseta*

-TOP -DAT TOP/also/even came-caused
'Mary made John (OP/also/even) come.'

b. John-*dake* (*ga*/*wa*) *kita*

-only NOM/TOP came
'Only John came.'

(Whitman 2001 p. 86)

The head of IP and CP cannot be followed by particles in (204a) and (204b), whereas the dative NP (205a) and *-dake* (205b) can be followed by other particles. Also, when one assumes that a post-positional phrase occupies a specifier position, case stacking, such as (206), can be easily explained.

- (208) Sensyu ni wa kono dai kara ga tobi-nikui
 athletes DAT TOP this board from NOM jump-hard
 'For the athletes from this board is hard to jump.'

(Whitman 2001, p. 87)

In addition, Whitman's assumption shows why a *-ga* marked subject cannot undergo scrambling. Since NP/*ga* is not a syntactic constituent, movement of a *-ga* marked subject causes ungrammaticality, whereas the movement of a syntactic grammatical constituent as in (208) is allowed.

- (209) *[sono hon ga]_i [Tarro ga [ti ii to] omotte iru (koto)
 that book NOM NOM good COMP thinking is fact
 '(...that) that book, Taroo thinks is good.'

- (210) [sono hon mo/dake]_i [Tarro ga [ti ii to] omotte iru (koto)
 that book even/only NOM good COMP thinking is fact
 '(...that) even/only that book, Taroo thinks is good.'

(Whitman 2001, p. 87)

Similarly, the *-ga/wa(TOP)/o* marked constituents in (209) are not allowed in a cleft-construction. On the other hand, when *-ga/wa(TOP)/o* are replaced by another particle like (210), the construction is possible.

- (211) Eri-o aishite-iru-no-wa Mari-**ga/*wa/*o* da.

Eri-ACC loving-is-NOM-TOP Mari-**NOM.TOP.ACC* is.
 '(The one) who loves Eri is Mari.'

- (212) Eri-o aishite-iru-no-wa Mari-*dake* da.

Eri-ACC loving-is-NOM-TOP Mari- only is.
 '(The one) who loves Eri is only Mari.'

(Whitman 2001, pp.87)

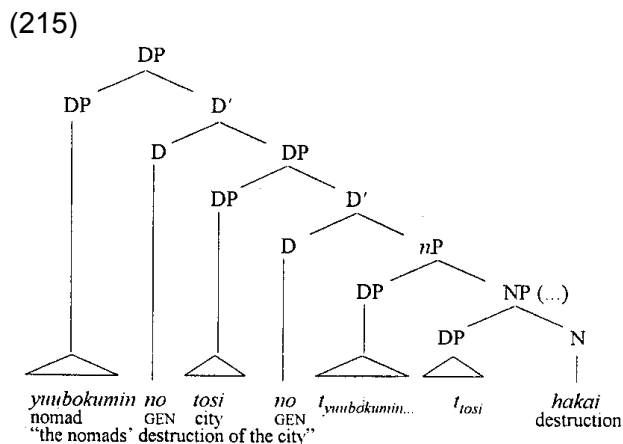
Moreover, negative polarity items in English and Japanese NPI with *-ga* marking behaves similarly. When negation is in the complement of the clausal head, a universal

quantifier takes scope over the negation in English. Correspondingly, when an NPI is followed by *-ga*, the NPI is interpreted as a universal quantifier taking scope over the negation in Japanese, as in (213). Thus, the structure of a clausal head and an NPI with *-ga* marking can be viewed as an exact parallel.

(213) Daremo sushi o tabe-nakatta.
 nobody sushi ACC eat-didn't
 'Nobody ate sushi.'

(214) Daremo ga sushi o tabe-nakatta.
 nobody NOM sushi ACC eat-didn't
 'Everybody didn't eat sushi.'

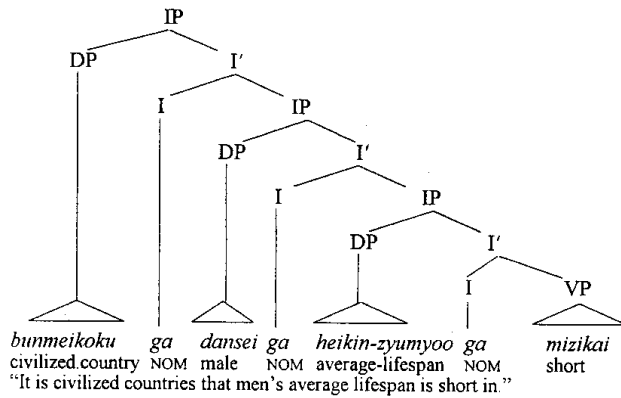
Finally, Whitman supports his theory by proposing that the multiple genitive pattern²⁶, as in (213), and the multiple nominative pattern, as in (214), can both be analyzed by a mechanism of iteration of the functional projection.



(Whitman 2001, pp.84)

²⁶Whitman explains that the recursion of DP is driven by Merge under Minimalism rather than by Movement because assuming the specifier positions are possible landing sites, the movement of the subject 'yuubokumin' to the higher DP by crossing over the object position results in an illegal operation.

(216)



(Whitman 2002, pp.92)

Under his analysis, recursion can be viewed as a property of DP and IP, respectively.

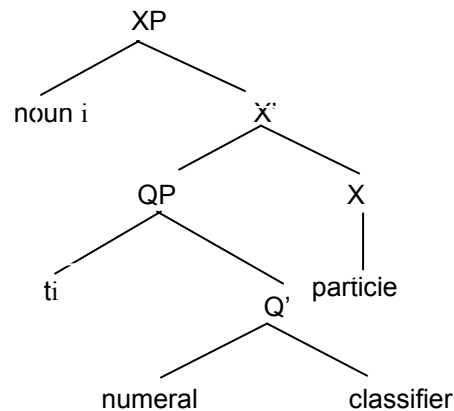
Whitman's proposal is theoretically attractive. It explains particle stacking and scrambling, yet some questions remain. If the *-o* marked object and *-ni* marked indirect object are also heads, the fact that they can be scrambled creates an inconsistency in his theory. Also, the status of contrastive *-wa* does not receive any account.

2.4.3. McClure's (2004) analysis of case markers and particles

In contrast to Miyagawa and Whitman, McClure (2004) argues that there is no structural difference between case markers and Type 1 particles.

He suggests that both arguments and adjuncts fit into a DP-like structure as in (217).

(217) Nominal XP structure in Japanese



(McClure 2004²⁷, p. 4)

The case markers and particles are syntactic D-heads and the semantic contribution of case markers and particles determines the label of the XP. When case markers (*-ga*, *-o*, and *-ni*) occupy the head position, the nominal structure is DP, whereas the structure is PP when the particles (*-de*, *-kara*, *-made*, and etc.) occupy the head position. Therefore, when the semantic representation of what Miyagawa refers to as arguments and adjuncts (or post-positional phrases) are considered, they are identical in McClure's analysis.

According to McClure's analysis, D in the DP or P in the PP selects what is allowed in stacking; as long as the semantic of the heads agree, stacking is possible.

McClure's analysis provides a straight forward picture of Japanese Type 1 particles and their syntactic and semantic representations, which resolves the disarray of syntactic representations and the behavior of case markers and Type 1 particles in Japanese. However, further analysis and explanation of how his analysis can be applied

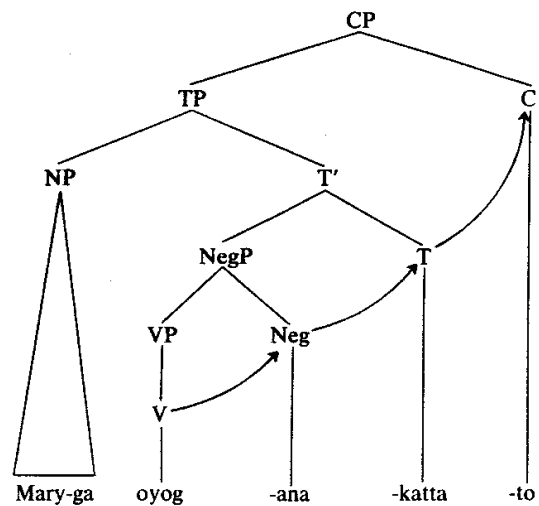
²⁷ McClure argues that this configuration entails particles to be a kind of generalized quantifier in semantics. For example, both *some* and *-o* are of the same semantic type. The difference between Japanese and English determiners is that Japanese determiners do not specify number whereas English detrminers do.

to explain the behaviors of case stacking and the case marking drop of case markers and particles is not discussed.

2.4.4. Sells' (1995) analysis of case markers and particles

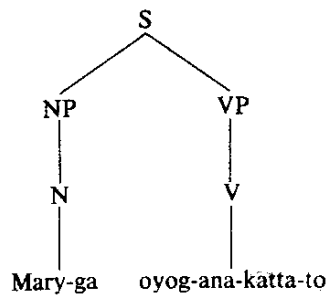
Another view of case markers and particles is presented in Sells (1995). He assumes particles are inflectional suffixes. From his lexical point of view within the LFG framework, Japanese (and Korean) morphological structures are typologically different from many other languages. That is, the languages are considered within X-bar theory, the particles are phrasal heads (such as P in Post-positional phrase), and combining syntactic units into morphological units is done via movement or affix movement, as illustrated in (216). Sells proposes that the particles and verbal inflections in Japanese and Korean are directly attached in the lexicon, as in (217).

(218)



(Sells 1995, p.278)

(219)



(Sells 1995, p.281)

Under this view, nouns and verbs are composed by cyclic combinations of different types of suffixes (such as focus, dative, and honorific) within the lexicon so that the suffixes themselves do not have any syntactic status.

An obvious difficulty with this hypothesis is that his assessment of particles is not compatible with any conventional view of Japanese particles. For example, parts of the polite form of the copula verb, *-mas*, and *-u* are all included in the category of suffixes according to Sells. Suffixes are indicated with underlining in (218).

(220) Taroo-wa Hanako -ga tensai -da -to omotte i-mas -u.
-TOP -NOM genius -copula-comp think-porg-level-pres
'Taroo thinks that Hanako is a genius.'

(Sells 1995, p.278)

Even though it may be conceivable to perceive those elements as affixes in phonological strings in this particular sentence, it is difficult to analyze the verbs and parts of verbs as inflectional suffixes. They do not fit into the traditional notion of particles since copula verbs do conjugate and there is no syntactic or morphological evidence to indicate that *-mas* and *-u*, can be independent syntactic constituents. Also, Sells only discusses *-ga*, *-da*, *-to*, *-mas*, *-u*, *-te*, *-ni*, and *-o* (honorific) and does not make any distinctions among the particles (such as case and focus particles) since they are all affixes in his theory. Since Sells (1995) hypothesis cannot address the distinctive behavior of particles, the analysis will not be discussed further.

Four different analyses of case markers and particles have been discussed. Miyagawa (1989) and Whitman (2001) syntactically divide particles. Miyagawa differentiates case markers and particles based on an argument and adjunct distinction. Whitman defines *-wa* and *-ga* (and possibly *-o* and *-ni*) as functional heads and assumes the rest of the particles as clitics. On the other hand, McClure proposes that there is no structural difference between case markers and particles, i.e., the semantics of the case markers or particle determines the label of XP. And Sells (1995) hypothesizes that case markers and particles are affixes from a lexical point of view.

Since I will analyze case markers and particles as a part of syntax, I will not discuss McClure and Sells further.

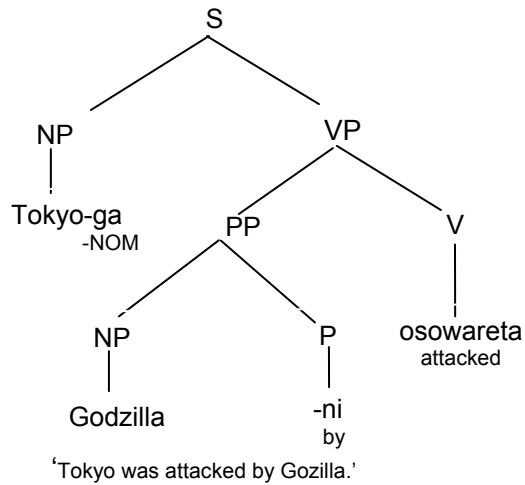
2.5. Miyagawa (1989) and Whitman (2001) extended

In this section, I will use Miyagawa and Whitman's analyses to address case marker and particle stacking.

2.5.1. [NP/case marker] and [host/particle]

Miyagawa (1989) assumes that the syntactic structures of [NP/case markers] and [host/particle] are distinct. Based on his analysis, a case marker is a clitic that directly attaches to an NP without a projection in syntax, whereas a particle in an adjunct is apost-position, which projects in syntax, to form a post-positional phrases (PP), as illustrated in (221) below.

(221)



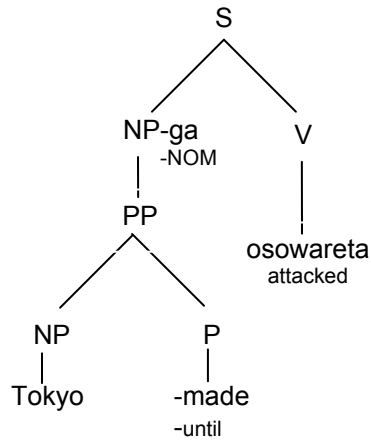
Although Miyagawa (1989) only discusses *-ni*, *-de*, and *-made* as post-positions, I assume all particles to be included in his definition of post-positions.

3.5.2. [Host/particle/case marker] stacking

Even though Miyagawa (1989) does not discuss case marker or particle stacking, when his assumptions are applied to [host/particle/case marker] stacking, the structure inside of the brackets in the intransitive sentence (222) looks like (223). Note that I assume the structure of affixes and clitics to be the same.

(222) Godzilla-ni [Tokyo-made-ga osowareta].
 -by -until -NOM attack-direct pass-past
 'Even Tokyo was attacked by Godzilla.'

(223)



When stacking is considered, Miyagawa's analysis results in a number of problems.

First, (223) is structurally odd, since Miyagawa analyzes case markers to be attached directly to an NP, the PP must directly become the NP, which does not fit into standardly assumed phrase structure rules.

Second, this structure makes the source of the θ -roles²⁸ ambiguous. Miyagawa assumes the source of θ -roles to be the verb in arguments and a particle in adjuncts, but it is unclear in (223) whether the θ -role is given by (i) the post-position, (ii) the verb, or (iii) both the post-position and the verb (although receiving multiple θ -roles should be ungrammatical). Furthermore, it appears that the NP, which contains the PP, receives its θ -role from the verb. If this is the case then, Miyagawa's distinction between arguments and adjuncts, case markers and particles, become unclear.

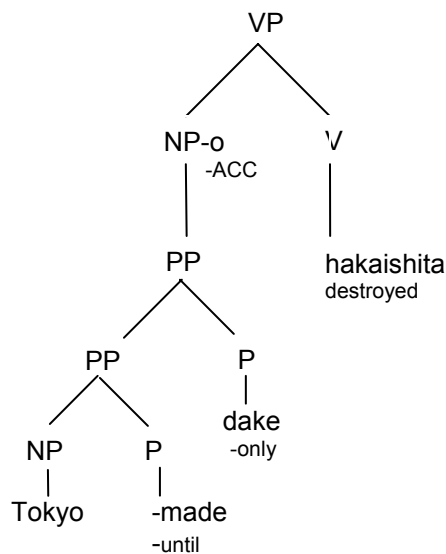
²⁸ Miyagawa (1989) states, "an adjunct does not receive a θ -role from the verb, so the θ -role of the NP contained in it must come from an other source. The only source present is the particle itself. In other words, the particle acts like a predicate in taking an object which it assigns a θ -role" (pp.2).

3.5.3. [Host/particle/case marker/particle] stacking

(224) represents the structure of particle stacking in a [host/particle/particle/case] unit, such as the string in the brackets of (225). Two things are apparent in (224): (i) the accusative marker *-o* attaches directly to the PP; that is, the nature of a [host/Type 2 particle] unit is an NP since case markers only attach to NPs, and (ii) the problem with the θ -role source remains, as seen in the previous section.

(224) Godzilla-wa [Tokyo-made-dake-o hakaishita].
 -TOP -until -only -ACC destroy -past
 'Speaking of Godzilla, it only destroyed up until Tokyo.'

(225)

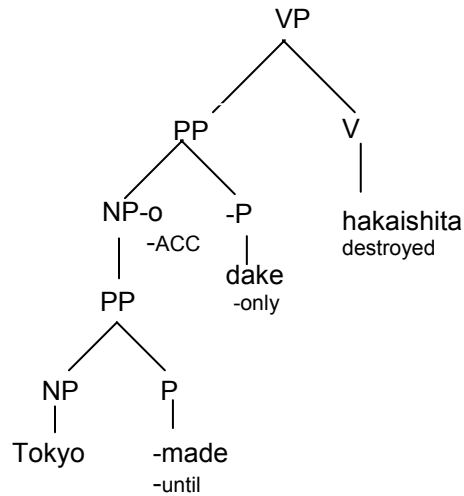


3.5.4. Illegal string: [host/particle/case marker/particle]

When the order of stacking is changed to create the ungrammatical pattern of a particle following a case marker, such as the string within the brackets of (226), Miyagawa's analysis presents another problem.

(226) *Godzilla-wa [Tokyo-made-o-dake hakaishita].
 -TOP -until -ACC -only destroy -past

(227)



As discussed in sections 4.3 and 4.4, case markers cannot be followed by either particles or by themselves. This structure cannot explain why this case marker-particle stacking pattern is illegal, which is a serious problem.

In sum, Miyagawa's theory only explains NP-case marker and host-particle units. When case marker and particle stacking are considered, the distinction between arguments and adjuncts dissipates, the sources of the θ -roles become ambiguous, and the analysis fails to reject ungrammatical particle stacking patterns. Further, Miyagawa does not offer any rationale or syntactic analysis as to why the arguments/adjuncts distinction entails a clitics/post-position distinction. Also, Miyagawa only discusses three post-positions, *-ni*, *-de*, and *-made*, so that his analysis of the other post-positions and case stacking is actually unknown.

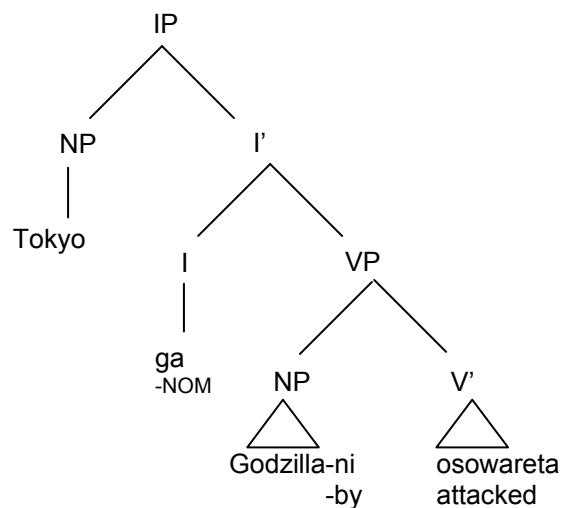
2.6. Whitman's (2001) analysis

Whitman (2001) assumes that the topic marker *-wa* and case marker *-ga* (and presumably accusative *-o*, and dative *-ni*) in Japanese are functional heads and that the others particles are clitics.

2.6.1. [NP/case marker] and [host/particle]

Based on the nature of DP, case stacking, scrambling, and negative polarity items (see 3.2.3 for detailed discussion), Whitman analyzes the nominative marker *-ga* and topic marker *-wa* as functional heads, i.e., *-ga* is I in IP and *-wa* is C in CP whereas particles are clitics, as illustrated in (228) below.

(228)



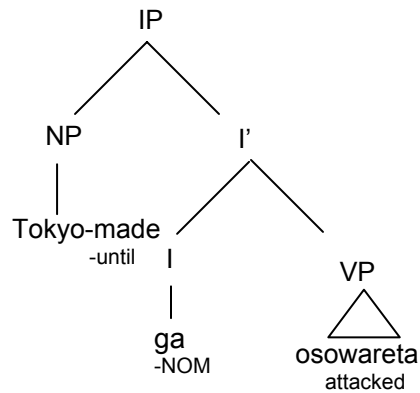
'Tokyo was attacked by Godzilla.'

3.6.2. [Host/particle/case marker] stacking

When Whitman's assumption is applied to [host/particle/case marker] stacking, the structure inside of the brackets in the intransitive sentence (239) looks like (230).

(229) Godzilla-ni [Tokyo-made-ga osowareta].
-by -until -NOM attack-direct pass-past
'Even Tokyo was attacked by Godzilla.'

(230)

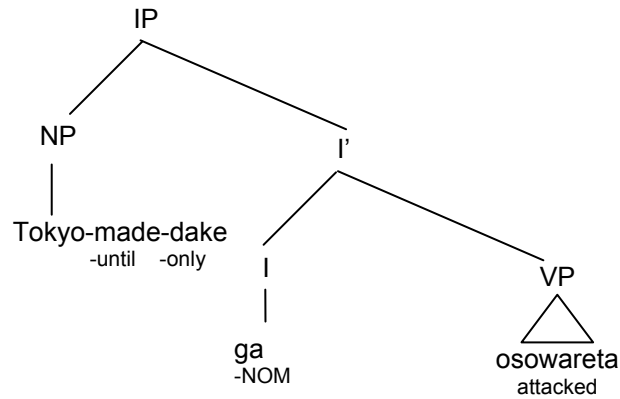


3.6.3. [Host/particle/particle/case marker] stacking

The structure of the [host/particle/particle/case marker], such as the string in the brackets in (231), is illustrated below in (232).

(231) Godzilla-ni [Tokyo-made-dake-ga osowareta].
-by -until -only -NOM attack -past
'Only up until Tokyo was attacked by Godzilla.'

(232)

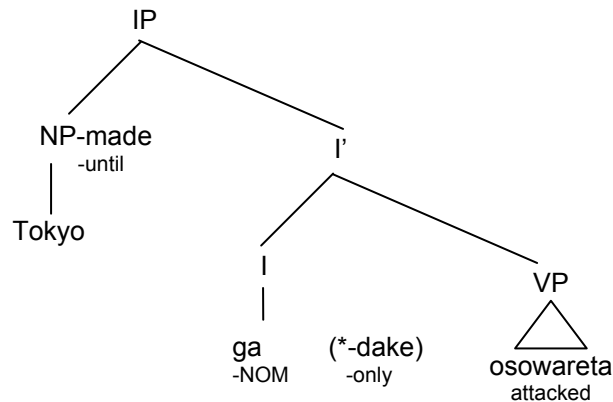


2.6.4. Illegal string: [host/particle/case marker/particle]

When the order of stacking is changed to create an ungrammatical stacking pattern, such as a particle following a case marker, e.g., the string within the brackets in (233), the structure of the stacking looks like (234).

(233) *Godzilla-ni [Tokyo-made-ga-dake osowareta].
 -by -until -NOM -only attack-past

(234)



Whitman's analysis is able to provide a structural explanation as to why particles cannot follow the nominative marker *-ga*, if one takes the position that particles never follow functional heads. Since *-dake* cliticizes onto a non-lexical host, (233) is ungrammatical.

This explains why the [host/particle/particle] strings are possible and why nothing can follow after case markers and/or the topic marker.

In sum, Miyagawa's (1989) analysis presents some problems of oddity in θ -role assignment and in structure. His hypothesis is not capable of forbidding illegal stacking patterns. On the other hand, with Whitman's (2001) analysis and an independent assumption that particles only attach to lexical phrases rather than functional heads, we have a syntactic explanation as to why illegal stacking pattern cannot be generated. Therefore, Whitman's analysis²⁹ is better at explaining the nature of case marker and particle stacking.

2.7. Nature of Type 2 particles: *-wa (contrastive)*, *-mo*, *-shika*, *-sura*, *-dake*, and *-demo*

In the previous sections, possible syntactic and semantic explanations of restrictions on case markers and Type 1 particle stacking were discussed.

We observed that case markers cannot be followed by themselves or by particles, but Type 2 particles, *-wa (contrastive)*, *-mo*, *-shika*, *-sura*, *-dake*, and *-demo*, cannot be followed by case markers or other particles either. In order to explore an explanation of why Type 2 particles exhibiting the stacking restrictions of case markers, other possible structures for those particles will be discussed in this section.

²⁹ Whitman's analysis does not fully explain certain phenomena, such as scrambling. Since an NP-*wa/ga* is not a grammatical constituent, it cannot under go scrambling. An NP-*o/ni* (dative) constituent should follow this pattern, but it actually can under go scrambling.

3.7.1. Underlining structure of argument NPs

The syntactic structure of the particles *-wa* (*contrastive*), *-mo*, *-shika*, *-sura*, *-dake*, and *-demo* will be examined in this section.

First, the particles *-wa* and *-mo*, in argument position are discussed. Consider (235), which contains two types of *-wa*: topic marker-*wa* and the contrastive *-wa*.

- (235) Sakanaya-ni-wa tai-ga aru ga fugu-wa nai.
fish market-LOC-TOP snapper exist but puffer fish-CONT exist-not.
'Speaking of at the fish market, (they) have snappers but (they) don't have a puffer fish.'

It is clear that sentence (235) contains two sentences, (236) and (237), which are combined by conjunction *-ga*.

- (236) Sakanaya-ni-wa tai-ga aru.
fish market-LOC-TOP snapper-NOM exist
'Speaking of at the fish market, (they) have snappers.'
- (237) Sakanaya-ni-wa fugu-ga nai.
fish market-LOC-TOP puffer fish-NOM exist-not.
'Speaking of at the fish market, (they) don't have a puffer fish.'

The noun *fugu* is followed by the nominative marker *-ga* in (236) when it is an isolated utterance. This suggests that in a surface string such as in (235), the contrastive *-wa* expresses 'contrast' when it appears at the position normally occupied by the nominative marker *-ga*.

In addition, the contrastive *-wa* cannot attach to a non-NP (as in 238), and cannot be followed by itself (as in 239), or other particles (as is 240), which is exactly parallel to case marker distribution.

- (238) *Sakanaya-ni-wa tai-ga aruga fugu-o uru-wa nai.
fish market-LOC-TOP snapper exist but puffer fish -ACC sell-CONT-only exist-not.

- (239) *Sakanaya-ni-wa tai-ga aruga fugu-wa-wa nai.
fish market-LOC-TOP snapper exist but puffer fish-CONT-CONT exist-not.
- (240) *Sakanaya-ni-wa tai-ga aruga fugu-wa-dake nai.
fish market-LOC-TOP snapper exist but puffer fish-CONT-only exist-not.

Similar observations can be made for the particle *-mo*. Consider the sentence (241), which contains two occurrences of the particle *-mo*.

- (241) Sakanaya-ni-wa tai-mo hirame-mo aru.
fish market-LOC-TOP snapper-also flounder exist.
'Speaking of at the fish market, (they) have snappers and also flounders.'

If the speaker intended (241) to mean 'snapper and flounder' (instead of 'snapper and *also* flounder'), the nouns *tai* and *hirame* would have been combined with *-to*, the nominal conjoining particle and 'hirame' would have been followed by the nominative marker *-ga*, as in (242).

- (242) Sakanaya-ni-wa tai-to hirame-ga aru.
fish market-LOC-TOP snapper-and flounder exist.
'Speaking of at the fish market, (they) have snappers and flounders.'

This suggests that the particle *-mo* overtly appears as *-mo* although it has the syntactic function of the nominal conjunction (*-to* 'and') which expresses the meaning of 'also'.

In addition, the conversion of *-ga* and *-mo* is elicited by discourse. For example, sentence (244) which contains *-mo* would be realized as (245) if uttered in isolation, i.e., if there is no preceding utterance (243).

- (243) Ken-chan-ga tsuri-ni iku-tte.
I -NOM fishing-to go-I've heard
'Ken-chan (will) go fishing, I heard.'
- (244) Watashi-mo (tsuri-ni) iku.
I -also fishing-to go
'I (will) go (fishing) too.'
- (245) (Watashi-ga/wa (tsuri-ni) iku.
I -NOM/TOP fishing-to go
'I (will) go (fishing) too.'

The subject of (244) is accompanied by *-mo* because it is related to the previous discourse.

It appears that contrastive *-wa* and *-mo* do not have a particular syntactic representation. Rather, they appear in the positions where case markers and nominal conjunction normally reside to express pragmatic or discourse relationship.

Similarly, the particles *-shika*, *-sura*, and *-demo* may also appear in positions that case markers normally occupy. If the speaker of (246) to (248) did not intend to convey emphasis (such as *only* and *even*), those sentences would have been uttered with case particles as in (249) to (251).

(246) Satomi-wa ryoori-shika shinai.
-TOP cooking nothing but do -neg
'Speaking of Satomi, she doesn't do anything but cooking.'

(247) Satomi -wa ryoori-sura dekinai.
-TOP cooking even able-neg
'Speaking of Satomi, she cannot even cook.'

(248) Inu-demo ii.
dog even good
'Even (a) dog is good.'

(249) Satomi-wa ryoori-o shinai.
-TOP cooking-ACC do -neg
'Speaking of Satomi, she doesn't cook.'

(250) Satomi -wa ryoori-ga dekinai.
-TOP cooking-NOM able-neg
'Speaking of Satomi, she cannot cook.'

(251) Inu-ga ii.
dog -NOM good is
'Even dog is good.'

In addition, the fact that the particles in (252) to (254) obey the rules of Case Marker Drop (CMD)³⁰ provides support for the view that these particles are indeed,

³⁰ Saito (1985) states that nominative and accusative CMD obeys the Case Filter. He proposes that a transitive verb assigns abstract accusative case to the object NP as in English, but not to the subject NP, again as in English. A subject NP does not receive nominative case from the verb, but structurally receives inherent case from the INFL. That is, when a nominative marker is deleted, it becomes case-less, which is a Case Filter violation. Accusative marker drop is allowed when the object NP is adjacent to the V since it

syntactical case markers. CMD is allowed for the accusative marker in casual speech when the object NP is adjacent to the verb, whereas the nominative marker, in general, is not allowed to be dropped.

(252) Kinoo Satomi-wa ryoori- Ø shinakatta.
 yesterday -TOP cooking do -neg-past
 'Speaking of Satomi, she didn't cook yesterday.'

*Satomi-wa ryoori- Ø kinoo shinakatta.
 -TOP cooking yesterday do -neg-past
 'Speaking of Satomi, she didn't cook yesterday.'

(253) *Inu - Ø ii.
 dog even good is
 'Even dog is good.'

That is, the underlined Type 2 particles in sentences (246) to (248) and the case markers we might otherwise observe in the same positions behave identically. Further, this view is consistent with the fact that Type 2 particles serve pragmatic and discourse functions. That is, a Type 2 particle appears in a case marker position for a discourse reason although it has the underlying structure of the case marker. If case markers are functional heads as Whitman suggests, this explains why they cannot be followed by either case markers or particles.

2.7.2. Type 2 particles in adjuncts

The previous section discussed a probable reason why Type 2 particles behave like case markers. On the other hand, when those particles appear in adjuncts, they have to be stacked with another particle to be grammatical³¹. For example, the particles

receives its case with or without the case marker. But a Case Filter violation results when a constituent intervenes between the object NP and the V.

³¹ The status (argument vs. adjunct) of the following [host/wa] constituent is very difficult to determine.

-wa, *-mo*, *-shika*, *-sura*, and *-demo* can attach to the object NP in the transitive sentence (254) by themselves, but when they appear in an adjunct phrase with an intransitive verb, as in (255) and (256), they have to be stacked with the locative particle *-ni*.

(254) Kono inu-wa chokoreeto-wa/mo/koso/sae taberu.
 this dog-TOP chocolate -contrast/also/emph/even eat
 'Speaking of this dog, it eats chocolate (but not something else).' (contrastive *-wa*)
 'Speaking of this dog, it eats also/emph/even chocolate.'

(255) Takara-ga kono shima-ni-wa/mo/koso/sae/sura/demo aru.
 treasure-NOM this island -LOC -contrast/also/emph/even/even/even exist
 '(The) treasure exists on this island (but not the other island).' (Contrastive *-wa*)
 '(The) treasure also/emphasis/even exists on this island.'

(256) Takara-ga kono shima-ni-shika nai.
 treasure-NOM this island -LOC only exist-neg
 '(The) treasure exists nowhere but on this island'

When these particles appear in transitive sentences without any particle, they become ungrammatical, as in (258), (260), (262), and (264).

(257) Takara-ga kono shima-ni-wa/mo/koso/sae/sura/demo aru.
 treasure-NOM this island -LOC -contrast/also/emph/even/even/even exist
 '(The) treasure exists on this island (but not the other island).' (Contrastive *-wa*)
 '(The) treasure also/emphasis/even exists on this island.'

(i) Zoo-wa hana-ga nagai.
 Elephant-top nose-NOM long.
 '(An) elephant's nose (is) long.'

At first, *-wa* in [zoo-wa] appears to be a topic marker and an adjunct since it can be omitted and is not subcategorized by the adjective in the context. For example, if (i) precedes the (ii), deleting [zoo-wa] is grammatical since [zoo-wa] is understood.

(ii) Zoo-no gaiken-wa hoka-no honyuurui-ni kurabete kibatsu-to ierudarou. Mazu kyodai dearu.
 eleph. -GEN look-TOP other-GEN mammals-to compared different -that can say probably first huge is
 'It is the case that elephants' look is different from other mammals. First of all, it is huge.'

Soshite, Ø hana-ga nagai.
 and nose -NOM long
 '(the elephant's) nose is long.'

However, if *-wa* is contrastive as in (iii), it contradicts my hypothesis about Type 2 particles since it appears without other particles. If there is a preceding sentence that contrasts in the meaning, [zoo-wa] can be interpreted as contrastive. For example, [zoo-wa] in (iii) looks like contrastive *-wa*.

(iii) Buta-wa hana-ga mijikai. Demo zoo-wa hana-ga nagai.
 Pig -TOP nose-NOM short but elephant-CONT nose-NOM long
 'Speaking of pigs, (their) nose are short. But elephants' are long.'

I am not sure about the status of [zoo-wa]; I intend to further investigate this in the future.

- (258) *Takara-ga kono shima- Ø -wa/mo/koso/sae/sura/demo aru.
- (259) Takara-ga kono shima-ni-shika nai.
treasure-NOM this island -LOC only exist-neg
'(The) treasure exists nowhere but on this island
- (260) *Takara-ga kono shima- Ø -shika nai.
- (261) Inu-wa beddo-de-wa ne-nai.
dog-TOP bed -at-contrast-sleep-neg
'Speaking of the dog, it doesn't sleep on the bed (but sleep somewhere else.)' (Contrastive-wa)
- (262) *Inu-wa beddo- Ø -wa ne-nai.
- (263) Inu-wa beddo-de-/mo/koso/sae/sura/demo neru.
dog-TOP bed -at-/also/emph/ even/ even/ even -sleep
The dog sleeps also/emphasis/even on the bed.'
- (264) *Inu-wa beddo- Ø /mo/koso/sae/sura/demo neru.

On the other hand, omitting the particles *-wa/mo/koso/sae/sura/shika/demo* from (257), (259), (261), and (263) does not result in ungrammaticality, as in (265) to (268) respectively.

- (265) Takara-ga kono shima-ni aru.
- (266) Takara-ga kono shima-ni nai.
- (267) Inu-wa beddo-de ne-nai.
- (268) Inu-wa beddo-de neru.

The examples above illustrate that the particles *-wa/mo/koso/sae/sura/shika/demo* are more pragmatic in nature than syntactic. A problem here is why deletion of Type 1 particles causes ungrammaticality while deletion of Type 2 particles does not. When one assumes Whitman's (2001) analysis, there is no obvious answer, whereas when one assumes Miyagawa's (1989) analysis, there is a possible explanation. That is, Type

2 particles cannot assign θ -roles in a post-positional phrase and Type 1 particles can.

In sum, Type 1 and Type 2 particles are similar in the way that they can attach to a variety of grammatical categories, but after analyzing case marker and particle stacking, it is clear that Type 2 particles exhibit characteristics that are parallel to case markers (and nominal conjunction only for *-mo*). When one assumes Whitman's analysis, it explains why Type 2 particles behave like case markers. Also, in an adjunct or PP, Type 2 particles must attach to another particle in an adjunct position or PP. If one assumes Miyagawa's analysis, a possible reason is that Type 2 particles do not assign θ -roles. A possible explanation for their ambiguous syntactic representation is that they are pragmatic or discourse-oriented in nature. The characteristics of Type 2 particles (pragmatic or discourse-oriented in nature with no syntactic representation) seem to indicate that Type 2 particles are real clitics.

2.8. Summary

The morphological status of Japanese particles as well as their various syntactic and pragmatic properties was explored in this discussion. The results of the discussion are summarized in Table 12 below.

Particle types		Morphological status	Characteristics	Function
Case markers	<i>ga (nom)</i> <i>o (acc)</i> <i>ni (det)</i> <i>wa (top)</i> ³²	affixes(Vance) clitics (Miyagawa) functional head (Whitman)	only attaches to NPs	closes an NP (i.e. syntactic)
Type 1 Particles	<i>ni (loc)</i> <i>dake</i> <i>bakari</i> <i>nado</i> <i>nanka</i> <i>made</i> <i>kosi</i> <i>sae</i>	clitics (Vance and Whitman) post-positions assign θ -role in PP (Miyagawa)	attaches to NPs and verbs, and also adjectives or adverbs	forms an NP by attaching to a constituent (i.e. syntactic)
Type 2 Particles	<i>wa (contrastive)</i> <i>mo</i> <i>koso</i> <i>sura</i> <i>shika</i> <i>demo</i>	clitics(Vance) (and cannot assign θ -role in PP)	attaches to NPs and verbs, and also adjectives or adverbs, but (i) they can appear in positions where case markers (only <i>-mo</i> appears in nominal conjunction position) appear (ii) in adjuncts: cannot appear alone—always with other particle	pragmatic or discourse-oriented in nature (and cannot assign θ -role in PP)

Table 12 Summary of Particles

Table 12 summarizes what we know about case markers and particles from this discussion. Although the actual distributions, host selections, and stacking constraints of individual case markers and particles are clearer now, the syntactic representations and the rationale for their behavior are still unclear. Especially, the analysis of Type 2

³² Whitman's analysis put the topic marker *-wa* into the same category as *-ga*, *-o*, and *-ni*, but the exact nature of topic *-wa* (and also contrastive *-wa*) must be the topic of future study.

particles reveals some concerns when it comes to the different behaviors that exhibit in arguments and adjuncts. Type 2 particles seem to assume the position of case markers (possibly a functional head in syntax) in arguments, but they cannot appear independently of other particles in adjuncts. They also have a pragmatic component that syntax alone cannot describe. The source of this behavior remains an open question, since I do not agree with Miyagawa's hypothesis which separates case markers and post-positions based on an argument and adjunct distinction.

Chapter 3: Literature Review Part 2, Primary L1 Input and L1 Acquisition

In Chapter 2, the nature of particles was discussed. I presented general descriptions of the particles and various perspectives on their possible morphological and syntactic status. Based on an analysis of their host selections and stacking patterns, the particles were categorized into four types: SFPs, case markers, Type 1 particles, and Type 2 particles. As we have seen, particles attach to different types of constituents and locations with diverse rules and restrictions.

3.1. Primary L1 input

Although normal Japanese children manage effortlessly to acquire the particles in a short time, mastering this seemingly complex yet phonologically small element (one or two syllables at most) does not seem like it should be easy. Furthermore, children's primary input also presents many challenges for learners. In particular, adults' speech is the primary L1 source for children, although this speech typically involves shorter and simplified sentences as well as a high frequency of particle omission and scrambling. I begin this chapter with discussion of two kinds of adult speech: adult-to-adult speech and adult's child directed speech.

3.1.1. Problem #1: Case Marker Drop (CMD)³³

In this section, I will first describe CMD and its constraints, and then report the results of various CMD studies.

³³ CMD only concerns case markers (-ga/o/ni) and the topic marker -wa.

3.1.1.1. Description of CMD and the constraints

Japanese case markers must be present in proper writing, though omitting certain case markers in adult's colloquial speech is quite common and grammatical. For example, the topic marker, *-wa*³⁴, can be feely dropped (Saito, 1985, p208), as in (1). I will use \emptyset to mark a deleted case marker.

- (1) Sakana- \emptyset /wa oishii?
fish -TOP tasty
'Speaking of (the) fish, is it tasty?'

As for the accusative marker *-o*, it can be dropped rather freely. For instance in (2), as long as the object NP is adjacent to the transitive verb the accusative marker drop is grammatical.

- William-ga sakana-o/ \emptyset katta.
-nom fish-acc past-buy
'William bought (some) fish.'

(3) exemplifies that once the object NP and the VP are separated by a constituent, CMD is not permitted.

- (2) William-ga sakana-o/ \emptyset mise-de katta.
-nom fish-acc store-location (loc) past-buy
'William bought (some) fish at a store.'
- (3) *William-ga sakana- \emptyset mise-de katta.

On the other hand, not all case markers can be freely omitted. The following examples illustrate that CMD of nominative markers is strictly constrained. In general, a

³⁴ Miyamoto, Wexler, Aikawa and Miyagawa (1999) suggest that sometimes it is impossible to restore an omitted particle in isolation. For example, a subject NP without a case marker can be a case of nominative marker drop, but there is no way of knowing if the NP was topicalized, i.e., an NP with topic and nominative marker can appear in the same surface position which implies a different intention of the speaker. For instance, (i) is used for contrast, and (ii) is for neutral description of actions or temporary states.

- | | | | |
|-----|---|------|--|
| (i) | Ame-wa hutte imasu-ga...
rain -TOP falling is but
'it is raining, but...' | (ii) | Ame-ga hutte imasu.
Rain-NOM falling is
'It is raining.' |
|-----|---|------|--|

Kuno (1973, p.38)

nominative case marker cannot be dropped. Thus, when nominative markers get dropped, as in examples (4) to (5), they frequently cause ungrammaticality.

- (4) Dare-ga kita no?
 who-nom past-come
 'who did come?'
 *Dare-Ø kita no?
- (5) Sensei-ga biiru-o nomu.
 teacher-NOM beer-ACC drink
 '(The) teacher drinks beer'
 *?Sensei- Ø biiru-o nomu.
- (6) Dareka-ga byooki desu.
 Someone-nom sick is
 'Someone is sick.'
 *Dareka- Ø byooki desu.
- (7) [Sono hito-ga yonda] hon.
 [That person-nom past-read] book
 'The book which that man read.'
 *[Sono hito- yonda] hon.

Although it is often claimed that nominative markers cannot be omitted, CMD of nominative marker does occur. When the case marker of a subject NP is omitted with an intransitive verb, as in (8) and (9), the resulting sentences are acceptable.

- (8) A, ame-ga/ Ø fut-te-iru
 Oh, rain-nom fell-gerund-non-past
 'Oh, it's raining.'

Tujimura (1996, p135)

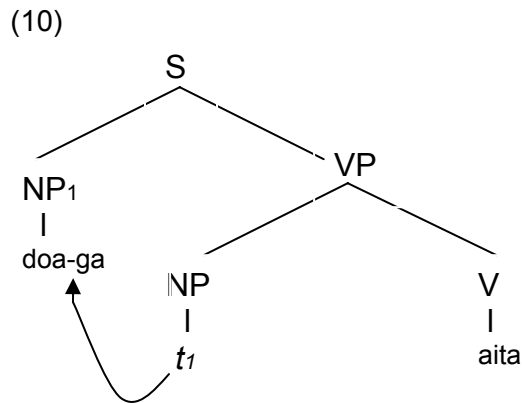
*A, ame-o fut-te-iru
 -acc

- (9) Doa-ga/ Ø aita-yo.
 door-nom past-open-emp (emphatic).
 'The door opened.'

* Doa-o aita-yo.
 -acc

Miyagawa (1989) offers an explanation for why this is possible. He assumes that the subject of verbs like (8) and (9) occupy VP internal object position in D-structure, i.e.,

they are unaccusative. The internal argument moves to subject position by Move- \forall because the verb cannot assign case to the object.



Miyamoto, Wexler, Aikawa, and Miyagawa (1999) suggest that since the subject NP was originally VP internal, nominative case omission is less marked with unaccusative verbs.

The structural nature of case assignment reflects the asymmetry of nominative and accusative CMD in examples (11) and (12). Based on the Case Filter, every overt NP must be assigned abstract case.

- (11) Case Filter (Chomsky, 1981, pp.49)
 *NP if NP has phonetic content and has no Case.
- (12) a. John destroyed the city.
 b. *John destroyed yesterday the city.
 c. *John's destruction the city.
 d. John's destruction of the city.
 (Chomsky 1981 p. 49)

Case assignment is licensed under government. In (12a), the subject NP, *John*, receives nominative case from the past tense INFL, and the object NP, *the city*, receives accusative case from the verb. The sentence (12b) is ungrammatical because the case assignee must be adjacent to the assigner, i.e., the adverb *yesterday* intervenes between the verb and the NP, *the city*. The nominal *destruction* is not a case assigner.

Thus (12c) is ungrammatical. On the other hand, the preposition *of* assigns abstract case to the object NP, *the city*, in (12d) and satisfies the Case Filter.

Saito (1985) states that nominative and accusative CMD obeys the Case Filter. He proposes that a transitive verb assigns abstract accusative case to the object NP as in English, but not to the subject NP, again as in English. A subject NP does not receive nominative case from the verb, but structurally receives inherent case from the INFL. That is, when a nominative marker is deleted, it becomes case-less, which is a Case Filter violation. Accusative marker drop is allowed when the object NP is adjacent to the V since it receives its case with or without the case marker. But a Case Filter violation results when a constituent intervenes between the object NP and the V.

3.1.1.2. Frequency of CMD in adult-to-adult vs. adult-to-child data

The presence of particles ought to be one explicit indicator of argument structure and a hierarchical government relationship which available to children in the early phases of acquisition. The absence of particles may be thought to hinder the learning process. However, Chew (1869), Clancy (1986), Otsu (1994), and Morikawa (1997), report that child directed speech contains a high frequency of Case Marker Drop (CMD).

Clancy (1986) cites Miyazaki (1979) who reports that *-ga* is omitted 10.2% of the time and *-wa* 25.5% in adult-to-adult speech, whereas 30% of *-ga* and 70% of *-wa* is omitted in Mother's speech directed to a 2-year old child.

adult-to-adult CMD	<i>-wa</i>	<i>-ga</i>
	25.5%	10.2%

Table 13 Miyazaki (1979) CMD Result (Adult-to-Adult)

Mother-to-2 year old child CMD	- <i>wa</i>	- <i>ga</i>
	70%	3%

Table 14 Miyazaki (1979) CMD Result (Adult-to-Child)

Clancy also cites Cook (1985) that in a certain context, 9.7% of *-ga* and 59.4% of *-o* was omitted by a child of 2;7 years, on the other hand 16.2% of *-ga* and 82.1% of *-o* was omitted in his caregivers' utterances.

caregivers-to- 2;7 year old child CMD	- <i>ga</i>	- <i>o</i>
	16.2%	82.1%

Table 15 Cook (1985) CMD Result (Caregivers-to-Child)

2;7 year old child CMD	- <i>ga</i>	- <i>o</i>
	9.7%	59.4%

Table 16 Cook (1985) CMD Result (Child)

Otsu (1994b) also reports on production data of 2 and 3 year-olds from Miyata (2000a). Out of 326 utterances, there are 47 utterances (14.4%) of omitted *-ga*, and there are 124 out 161 utterances (77.0%) of omitted *-o*.

Children's CMD	- <i>ga</i>	- <i>o</i>
	14.4%	77.0%

Table 17 Otsu (1994b) CMD Result (Children)

Finally Otsu (1994a) comes to the conclusion that children obey adults' CMD constraints. He analyzed the data from 20 native monolingual Japanese children (3-4 years-old). The subjects were shown pictures of toys that were involved in an action with someone (or with an animal), such as "a mother eating a watermelon." They were

then asked to answer a question about the agent and the theme (so that scrambled answers could be induced) in the picture. The data shows that all subjects obeyed the constraints of CMD with no exceptions, just like adults would. That is, children know that the allowable CMD is not based on surface proximity of a moved NP, but on the NP's original location, namely VP internal. By the age of 3 to 4, children have already acquired the hierarchical relationship of NPs and the VP.

Morikawa (1997) analyzed the acquisition progress of the argument structure of transitives, intransitives, predicate adjectives, and case markers in the Noji corpus, which is a longitudinal study of a Japanese boy, Sumihare, and his caretakers. The data suggest that Sumihare acquired a conceptual/logical level of distinction between transitive and intransitive argument structure early (by 2;04) despite the fact that the parental input contained many gaps. For example, Sumihare did not have particular difficulty learning the correct subject marker use for all predicate types. He started out with a lower frequency of case marking compared to the adults, but his correct usage of -ga caught up to adults' during the period of 2;5 to 2;7.

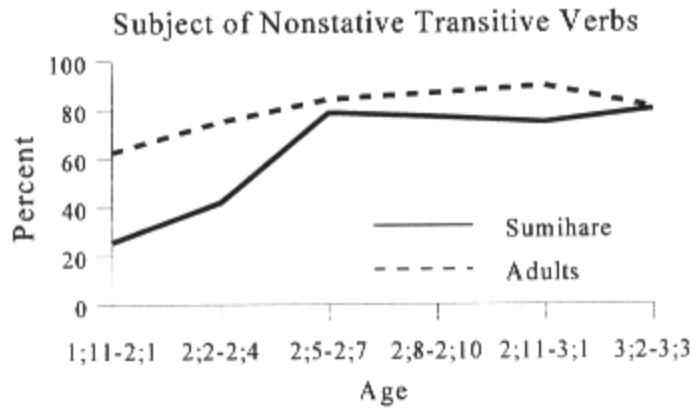


Chart 1 Morikawa (1997, p.53) Usage of *-ga* (Transitive Verbs)

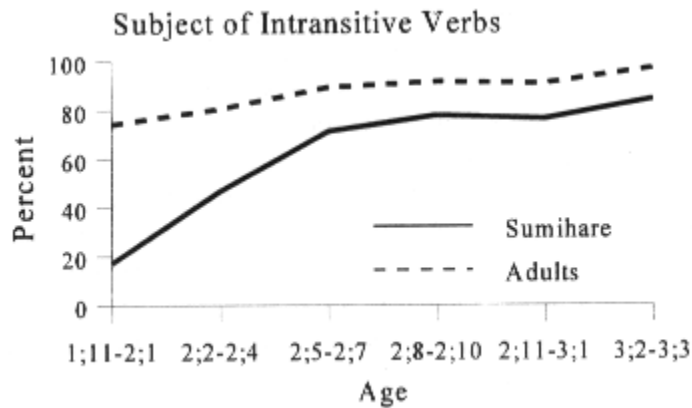


Chart 2 Morikawa (1997, p.53) Usage of *-ga* (Intransitive Verbs)

In sum, except for Morikawa's (1997) study, it is difficult to observe a gradual pattern since the other studies were not longitudinal with respect to particle acquisition. However, it appears that mothers' utterances initially contain a high frequency of CMD which gradually changes toward the frequency found in adult-to-adult CMD. Also, children's CMD initially start out as 100% and gradually moves toward the frequency of adults' CMD.

3.1.2. Problem #2: Scrambling³⁵

Scrambling refers to leftward movement of an NP. In Japanese, as long as the main verb remains in the sentence final position³⁶, the NPs in a sentence can in general scramble freely. Suppose a mother's speech towards a very young child contain a high frequency of CMD. If scrambling is present, it would be very difficult for the child to determine the thematic relationship of the NPs. In this section, I will first describe scrambling and its constraints, and the frequency of scrambling in adult speech. I then discuss studies of scrambling in children.

3.1.2.1. Scrambling and its constraints

Japanese is a subject-object-verb (SOV) language and the roles of the NPs are marked with overt postpositional case particles. In general, the nominative case marker *-ga* marks subject, and the accusative case marker *-o* marks the direct object in a transitive sentence, such as (13).

- (13) Ally-ga doggufuudo-o tabeta.
S O V
-nom dog food-acc ate-past
'Ally ate (the) dog food.'

It is obligatory for the main verb to remain in the sentence final position although the word order of other constituents is flexible. For example, the NPs in the ditransitive sentence (14), where the three case marked NPs: NP-*ga* (S), NP-*ni* (ID), NP-*o* (DO), and V in that order are generally assumed to form the predominant or canonical word

³⁵ Since the MLU of 3;0 is less than 3, I will limit my discussion to local scrambling.

³⁶ After-thoughts, the insertion after the main verb to add to the speaker's belatedly-realized omission to augment the sentence, is an exception to this rule.

order of Japanese according to Yamashita (1997), but they can be moved or scrambled in any of the ways found in (14 a-e) and still maintain grammaticality.

- (14) Momotaroo-ga inu-ni kibidango-o ageta.
 S ID DO V
 -nom dog-dat sweets-acc past-give
 'Momotaroo gave (a) dog (the) sweets.'
- a. Inu-ni Momotaroo-ga kibidango-o ageta.
 b. Kibidango-o Momotaroo-ga inu-ni ageta.
 c. Inu-ni kibidango-o Momotaroo-ga ageta.
 d. Kibidango-o inu-ni Momotaroo-ga ageta.
 e. Momotaroo-ga Kibidango-o inu-ni ageta.

3.1.2.2. Preference of *-ni -ga* sequence with verb *aru*

Although scrambling is generally considered to be rather flexible as seen in (14), there are some instances where a particular word order (not necessarily the canonical order) is more acceptable. Kuno (1973) illustrates that many existential sentences (sentences with the main verb *aru* 'exist') sound more natural when the NP with a locative *-ni* occupies the sentence initial position, as in (15) and (16).

- (15) a. Yama-ni ki-ga aru
 Mountain-loc tree-nom exist
 'There are trees on the mountain'
- b. ??Ki-ga yama-ni aru.
 '(Lit.) trees are on the mountain.'
- (16) a. Mukashi, aru tokoro-ni oziisan-to obaasan-ga arimashita.
 long ago, a place-loc old-man and old-woman were
 'Long ago, there were in a certain place an old man and an old woman.'
- b. *Mukashi, Oziisa-to obaasan-ga aru tokoro-ni arimashita.
 '(Lit.) Long ago, an old man and an old woman were in a certain place.'

Kuno (1973, p.355)

3.1.2.3. SOV order with overt -ga -ga sequence

Tsujimura (1996) points out that SOV word order tends to be preserved when both the subject and object are marked with nominative markers with stative predicates³⁷ (see further discussion later). For example, both arguments in (18) are marked with *-ga*, yet the second NP functions as the object of the sentence with the stative verb *wakaru* 'to understand'.

(17) Taroo-ga eigo-ga wakaru.
-nom English-nom understand
'Taroo understands English.'

(18) ?eigo-ga Taroo-ga wakaru.

The overt *-ga* markings do not reflect the thematic relationship of the NPs. That is, the *-ga* markings are ambiguous.

3.1.2.4. Frequency of scrambling in adult speech

As far as the frequency of scrambling in adult language is concerned, somewhat conflicting studies are found. Kuno (1973) reports that the frequency of the SOV and the OSV word order appear in an estimated ratio of 17:1 (=5.6% OSV) in newspaper articles (according to National Language Research Institute, Tokyo, Japan), and Yamashita (1997) refers to the finding from her previous study (Yamashita & Suzuki 1955) where less than 1% of any type of scrambled sentence is observed in a transcription of informal discourse of 1324 sentences. On the other hand Sekerina (2002) claims that 30.8% of 1834 sentences that contained two arguments and a ditransitive verb were consistently scrambled (with the direct object occurring before the indirect object) in the study by Miyamoto and Takahashi (2000).

³⁷ See Kuno (1973, pp91-91) for a list of stative predicates.

Whether the rate of scrambled sentences reviewed above directly reflects the child-directed speech of adults remains an unanswered question, so data of scrambling frequencies of child-directed Japanese is still needed for future study.

3.1.2.5. Scrambling among children

Although early studies indicate that scrambling does not appear in the early stage of a child's grammar, a reanalysis of those studies indicates some contrary results.

Hayashibe (1975) tested 23 Japanese children between 3;1 to 5;8 in act-out experiments based on Bever's theory of perceptual strategies applied to children's comprehension. A part of Bever's theory applies to word order, where during certain period of children's development, they assign thematic roles based on the surface word order. In English, for instance, a sentence containing the string NP VP NP is understood as an active sentence (called the NVN strategy), i.e., a passive sentence as in (19) is often misinterpreted as the active sentence in (20) by those who do not know (or do not attend to) case markers and often by young children.

(19) The dog was kissed by the bird.

(20) The dog kissed the bird.

When this strategy is applied to Japanese word order, the assumption is that the scrambled OSV sentence (21) is misinterpreted as the non-scrambled SOV (called the NNV strategy) as seen in (22).

(21) Ahiru-san-o kame-san-ga oshimashita.
duck-acc turtle-nom push-polite(pol)-past
'the turtle push the duck.'

(22) Ahiru-san-ga kame-san -o oshimashita.
duck-NOM turtle-ACC push-pol-past
'the duck push the turtle.'"

The result of Hayashibe's study shows that 10 subjects (43%) between the ages of 3;4 and 5;10 (average of 4;9) interpreted the OSV order as SOV order which indicates that case markers are important for children to understand thematic roles and that scrambling does not exist in children's language.

A similar result is reported by Hakuta (1982) from his experiment with 48 children between the ages of 2;3 and 6;2 in an act-out comprehension task. The sentences presented to the children contained active/passive SOV and OSV sentences with different animals as the agent and patient.

Voice/word order	NNV pattern	Example
Active SOV	N(agent)-ga N(patient)-o V-active	kame-ga panda-o ketta
Active OSV	N(patient)-o N(agent)-ga V-active	panda-o kame-ga ketta
Passive/SOV	N(patient)-ga N(agent)-ni V-passive	panda-ga kame-ni kerareta
Passive/OSV	N(agent)-ni N(patient)-ga V-passive	kame-ni panda-ga kerareta

Note. kame=turtle, panda=panda bear, ketta=v.kick-past, kerareta=v.kick-past-passive

Table 18 Hakuta (1982, p.63) Scrambling

Children were told to act out the sentence that they heard. Random orders of 12 sentences were given to the subjects after three simple warm-up sentences. Each correct response was scored and the results were analyzed. The analysis shows that the performance on the SOV/active condition was noticeably superior to the other conditions. Notably, children performed poorly on OSV/passive sentences indicating that word order has a significant effect on active sentence comprehension but not on the passive construction.

Although these studies seem to indicate that children have a problem with scrambling, Otsu (1994b) revisits the result of Hayashibe (1977) and questions whether it is an indication of a lack of scrambling in children's grammar or the NNV strategy which is overriding existing scrambling rules. First Otsu reports the presence of object-

subject-verb word order in a 48 hour naturalistic recording of a 2 year old child in Iwatate's (1981)'s study. Then he suggests that a possible reason why Hayashibe's subjects did not successfully understand a scrambled sentence such as (175) is due to discourse factors. Otsu suggests that scrambled sentences without a contextual connection to the previous utterance sound unnatural. That is, the motivation for fronting a constituent by scrambling is related to a bridging function to the previous context. Since Hayashibe's subjects were presented scrambled sentences without any context, the interpretation of the OSV sentence did not seem semantically sound to the subject. If a context such as (23) was presented prior to (21), and a determiner "sono=that" was added to (21), then an OSV sentence sounds much more natural.

(23) Kooen-ni ahiru-san-ga imashita.
 park-loc duck-sub is-polite-past
 'there was a duck in the park.'

(24) Sono ahiru-san-o kame-san-ga oshimashita.
 that duck-acc turtle-nom push-polite-past
 'a turtle pushed that duck.'

(Otsu 1994b)

Otsu recreated Hayashibe's study with 24 mono-lingual Japanese children between the ages of 3;1 to 4;11. The experimental group was given four scrambled sentences with a sentence introducing an animal as a discourse topic for each sentence, and the control group was given four scrambled sentences in isolation as was done in Hayashibe's study. The result was that the control group exhibited a similar response pattern to that of Hayashibe (1975), but the experimental group did overwhelmingly well. In the control group, 22 out of 48 gave correct responses and younger children made more errors. Conversely, 43 out of 48 children in the experimental group gave the correct responses. Hence Otsu concluded that 3-year olds can understand scrambled sentences by utilizing their grammatical knowledge when an appropriate discourse context is given.

In sum, it seems logical to assume that adult-to-child speech includes some scrambled sentences.

3.1.3. Problem #3: Ellipsis

Ellipsis is another common feature of colloquial speech and this phenomenon may present another problem for young learners of Japanese³⁸. When the missing information is recoverable from the context, arguments can be dropped from the sentence.

NP ellipsis

(25) Ano, Øsuki Ø da-yo!
well, favorite pres-be -emp
'Well, (I) love (you)!'

(26) Shin-hannin-ga mitsukatta node ØØ syakuhoo shita.
true-criminal -nom passive-past-find since release past-do
'Since real criminal was found, (someone) released (someone).'

Copula verb ellipsis

(27) Konnichwa akachan, watashi-ga mama Ø-yo.
hello baby I-nom mother -emp
'Hello, baby, I (am) your mommy.'

3.1.4. Problem #4: Lack of a one-to-one correspondence of case markers

In addition, it is not always the case that there is a one-to-one correspondence of case markers and grammatical function. Although, there is no literature that specifically addresses whether this problem appears in Motherese, it warrants some discussion.

³⁸ Ellipsis is presumably a common characteristic of Motherese as well. I discuss Motherese in greater detail in the next section.

3.1.4.1. Object-ga

An argument with nominative case does not always appear together with the subject of the sentence. For example, a nominative marker may appear with the object of sentence, such in (28).

- (28) *Watashi-wa eiga-ga suki-da.*
I -top movie-nom fond of copula
'Speaking of myself, I like movies.'

As we have already seen, subject and object are nominatively marked with a stative verb as in (28). Kuno (1973, p. 81-91) explains that stative verbs, adjectives, and nominal adjectives mark their objects with *-ga*. For example, the following grammatical elements that express feeling (30), *want to do X* which is *-tai* derivative (31), competence with *dekiru* (32), potential *-re/rare* verb forms (33), non-intentional perception verb *wakaru* (34), possession (35) and need (36), are all statives that take object-*ga*.

- (29) *Dare-ga eigo-ga/*o jyoozu desu ka?*
who-nom English-nom good at is Q
'Who is good at English?'
- (30) *Boku-wa Mary-ga/*o kowai.*
I -top -nom am- fearful-of
'I am afraid of Mary.'
- (31) *Boku-wa eiga-ga/o mitai.*
I-top movie-nom see-want
'I want to see movies.'
- (32) *Dare-ga nihongo-ga/*o dekiru ka?*
who-nom Japanese can Q
'Who can (speak) Japanese?'
- (33) *Dare-ga nihongo-ga/o hanaseru ka?*
who-nom Japanese speak-can Q
'who can speak Japanese?'
- (34) *Anata-wa nihongo-ga wakarimasu ka?*
you-top Japanese-nom understand Q?
'Do you understand Japanese?'
- (35) *Anata-ga okane-ga aru koto-wa minna-ga sitte imasu.*
you-nom money-nom have fact-that everyone-nom knowing is
'Everyone knows that you have money.;

- (36) Watakushi-wa okane-ga iru.
 I-top money-nom need.
 'I need money.'

Kuno (1973, p.81-87)

Note that the stative derivatives in (29) and (36) actually allow the nominative and accusative markers to alternate.

3.1.4.2. -ga/ni Alternation

In many cases, *-ga* can alternate with the dative, *-ni*, in NP₁-*ga* NP₂-*ga* verbal constructions. (37) illustrates the *ga/ni* alternation.

- (37) Anata-ga/ni kokuban-no zi-ga mienai no wa toozen desu.
 you-nom/dat blackboard's letters-nom not be able to see-top atural is
 'It is natural that you should not see the letters written on the blackboard.'

Kuno (1973, p.89)

3.1.4.3. -o/ni Causative

A difference in semantics can result in an *-o/ni* alternative, even when the alternation yields identically constructed sentences. An object NP can be either marked with an accusative or dative marker in a sentence with a causative verb (e.g., verb root *aruk* (walk)+the causative morpheme *-(s)ase*) as in (38) and (39).

- (38) Taro-ga Hanako-o aruk-ase-ta
 -nom -acc walk-causative (caus)-past
 'Taro made Hanako walk.'

- (39) Taro-ga Hanako-ni aruk-ase-ta
 -ga -dat walk-caus-past
 'Taro had Hanako walk.'

Tsujimura (1996, p.247)

Tsujimura (1996) notes that *-o/ni* alternation reflects different semantic interpretations, and quotes Shibatani (1990, p.309): "the o-causative implies that intention of the cause

Dative, -ni	Example
goal (indirect object)	-ni ageru (to give)
change of position with an intransitive verb	-ni noru (to ride)
pseudo-reciprocal use of dative	-ni au (to meet)
dative of direction with an intransitive verb	-ni iku (to go)
dative of direction with transitive verb	-ni okuru (to send)

Table 19 Morikawa (1998) Dative *-ni*

Postpositional *-ni* can be classified into eighteen categories, such as the following (see complete the list in Matsuoka (1989, pp106 -107)):

Postposition, -ni	Example
benefactive	-ni yaku (to bake for)
dative of confrontation with adjective	-ni yoi (good for)
dative of confrontation with a adjective nominal predicate	-ni ijiwaru (to be mean to)
dative of confrontation with a verb predicate	-ni amaeru (to coax)
objective stimulus	-ni komaru (to be troubled by)

Table 20 Morioka (1998) Postposition *-ni*

In sum, if it is the case that adult-to-child speech contains ambiguous case markers, this may present a difficulty to the young language learner. Ambiguous *-ni* and other ambiguous particles will be discussed in further detail in section 4.2.1.

3.2. Motherese theory

It is known that to various degree adults use a non-standard form of speech when talking to children. This style of talking is distinct from adult-directed speech, and it is variously referred to as Motherese, Baby-talk, Parentese, or Child-Directed Speech (CDS). It has been pointed out that this special register of infant/young child-directed speech has certain properties. Since the earliest part of an infant's life is dominated by interaction with mothers and other close family members, it is logical to assume that this

initial primary L1 resource has a significant influence on how a child learns to speak. In the following section, I will discuss the literature on Motherese in English, Motherese in Japanese, and the problems that Motherese might cause for a child's language acquisition.

3.2.1. Motherese in American English

Newport (1977) and Newport, Gleitman, and Gleitman (1977) investigated 15 middle class English-speaking mothers and their daughters who ranged from 12-27 months old. The interaction between the mothers and the children was recorded in two, one hour sessions (six months apart).

The general characteristics of Motherese³⁹ are that it is: (i) repetitive, (ii) short, and (iii) simple in nature. For example, Motherese often involves only minor syntactic movement (such as dative movement), as in (43), or deletion of an auxiliary, as in (44), or subject NP, as in (45).

- (43) She gave Lisa the ball.
- (44) Wanna go to the store.
- (45) Throw the ball.

Newport (1977, p.189)

Further analysis reveals that Motherese is obviously repetitive (average of 23% within all the utterances) and has a short Mean length of Utterance⁴⁰ (MLU) (MLU in morphemes=4.24 to child vs. 11.94 for mother to the experimenter). Also Motherese consists predominantly of one-clause sentences and 9% of sentences contain semi-modals (such as 'wanna', 'hafta' and 'gonna').

³⁹ Fernald et al.(1989) reports higher pitch and longer pauses in infant-directed speech by both fathers and mothers speaking French, Italian, German, Japanese, British English, and American English. This may assist syntactic learning by increasing the intelligibility of unfamiliar words and expression, but I will not discuss prosodic matters here.

⁴⁰ MLU in child language studies refer to length utterances in morphemes, not words.

In addition, statements in Motherese are almost all completely well-formed and highly intelligible: 60% are grammatical (in the sense of informal conversational speech), 17% are grammatical fragments (isolated speech of sentential constituents), 19% are “stock” utterances (such as ‘thank you’, ‘yes’, ‘no’), and 4% are unanalyzable because of unintelligibility from the recording.

The primary functions of Motherese are to carry out simple tasks, such as directing the activity of the child, making requests for well-practiced behaviors relating to the activity of the child, asking about the needs of the child, and referent and object matching, as in (46).

(46) That’s a ball.
Newport (1977, pp189)

Motherese contains a variety of sentence types: such as declarative (30%), imperative (18%), deictic⁴¹, (8%), and questions (44%).

3.2.2. Motherese in Japanese

The nature of Japanese Motherese has not been studied in detail, but two studies are available. First, Chew (1969) describes the lexical nature of Japanese Motherese. Characteristics of Japanese Motherese include phonological substitutions, such as (46), reductions in morphology such as (48), and special lexical items such as (48).

⁴¹ For example, in a referent and object matching sentence such as ‘That is an X’.

	<u>Motherese</u>	<u>Adult equivalent word</u>	<u>meaning</u>
(47)	[kamatoto] [onri]	[kamaboko] [oriru]	'fish cake' 'to get off'
(48)	[o♣kai] [o♣ki]	[o♣kanai] [okiru]	'afraid' 'to get up'
(49)	[bUbU] [anyo]	[kuruma] [ašI]	'car' 'foot'

(Chew 1969 p.10-17)

In addition, Chew makes the general observation that the object marker *-o* seems to be entirely omitted and the subject marker *-ga* is only found in front of a verbs.

Fernald and Morikawa (1993) report that the functions of Japanese Motherese are similar to Motherese in American English. They studied Japanese and English speaking mothers (15 pairs each of Japanese and American mothers and infants at 6, 12, and 19 months-old). They were audio- and video taped for about 10 minutes after a 15 to 30 minute introductory period during their visits (although the number of visitations is not mentioned). The American mothers were all white middle-class women who resided in a suburban community, and the Japanese mothers were all Japanese citizens who were visiting the San Francisco area temporarily as wives of Japanese business men.

Fernald and Morikawa claim that Japanese Motherese exhibits repetition and simplification similar to American Motherese. In addition, they found that Japanese mothers are more attuned to emphasizing appropriate social routines and politeness.

3.2.3. Motherese does not accelerate the speed of language acquisition

The findings of Motherese led researchers such as Levelt (1975) to hypothesize that Motherese is a specially simplified and structured syntactic teaching device to introduce forms and meanings, which is finely tuned to the child's language competence and thereby facilitates further language learning. Undoubtedly, language acquisition is affected by the linguistic environment (after all, a child only speaks the language s/he is exposed to), yet whether or not maternal input is a specialized language teaching device which accelerates a child's language acquisition remains unknown.

Having said that, the focus returns to an old debate: nature or nurture—does or does not Motherese (which (i) is highly repetitive, (ii) has a short Mean Length of Utterance (MLU) and is simple, and (iii) is presumably finely tuned to children's language competence) facilitate the child's acquisition or the speed of acquisition?.

Gleitman, Newport, and Gleitman (1984) argue that Motherese cannot accelerate language acquisition. They do not find any evidence from Newport & Gleitman (1976) that repetition has an effect on the growth of children's comprehension. Motherese, which is simple in the sense that the MLU and the number of clauses per sentence is kept small (by omitting optional and stylistic formations in the surface syntax), and semantically simple for limited communication functions, does not help language acquisition. Newport, Gleitman, and Gleitman (1977) suggests that short utterances, which are achieved by the deletion of grammatical constituents, auxiliaries, and pronouns from D-structure may hinder or at best have no effect on language acquisition.

Further, to reply to some criticism of their (1977) study, the original study was reanalyzed⁴² and the results were reproduced in Gleitman, Newport, and Gleitman (1984). Here, they actually discovered a positive correlation between the number of

⁴² In order to match the chronological ages to Furrow, Nelson, and Benedict (1979), only 18-27 month old pairs were reanalyzed in this study.

maternal S-nodes per utterance and child language growth (at least for 18-21 month-old children). This correlation suggests that simplified input does not benefit language acquisition. That is, the Motherese hypothesis is based on a logical flaw in the learnability argument. Gleitman, Newport, and Gleitman (1984) claim that if a child is exposed only to simple input sentences, s/he will not be able to develop a hypothesis about strings and clauses since “simple sentences fail to exhibit all aspects of the syntactic structure” (Gleitman, Newport & Gleitman, 1984, p.68). Lastly, Newport (1977) and Newport, Gleitman, and Gleitman (1977) suggest that the primary reason for simple sentences is to maintain the child’s attention and to gear-down to the child’s cognitive comprehension level. They also suggest that “many features of the mother’s speech change in accordance with the child’s age, not his competence with constructional features of the language” (Newport, Gleitman, and Gleitman 1977, p.145).

On the other hand, it seems plausible that Motherese can help the child’s lexical development by using a “referent-matching strategy” (by pointing and naming), which provides a verbal labeling when the child is looking at the referent.

3.3. Acquisition order

In spite of the poverty of the primary input and the problems involving adult speech as discussed in previous sections, a child’s acquisition proceeds smoothly, and different argument types emerge at an early age. Further, not only do they emerge, it has been reported that there is a regular order of acquisition. The following section pertains to the acquisition order of morphemes in English and Japanese.

I begin with Brown (1973) who shows an acquisition order of morphemes in English despite different input.

3.3.1. Acquisition order of morphemes in English

Brown (1973) presents an analysis of a longitudinal study of three preschool children named Adam, Eve, and Sarah. Brown studied the transcriptions of conversations between mother and child in the home to study early language production in English. Since the children's chronological ages differed (Eve 18 months, Adam and Sarah 24 months), rather than using age as a measure, Brown categorized the data into 5 stages according to the Mean Length of Utterance (MLU) of morphemes (instead of words)⁴³. Amongst his data Brown discovered a common acquisition sequence for fourteen grammatical morphemes. Table 21 summarizes the order of the fourteen morphemes.

⁴³ Stage 1 (first multi-word utterance to a MLU of 2)

Telegraphic speech (mostly with content words) and "pivot look" utterances (but "pivot look" utterances do not mean pivot grammar. Rather, the 2 word stage expresses a small set of semantic relations [agent /action, action/object, agent/object, action/location, entity/location, possessor /possession, entity/attributive, and demonstrative/entity).

Stage 2 to 5 (MLU 2 to 4.5)

As children's MLU increases their capacity to learn to use grammatical structures of greater complexity (by conjoining, expansion, and elaboration) also increases. They move from Stage 2 into Stage 3, 3 to 4, and 4 to 5 as they learn to use different morphemes. Brown finds a regular order of acquisition of 14 morphemes among Adam, Eve and Sarah.

Stage	MLU	14 Morphemes	Example
Stage 2	2.0-2.5	(1) Present progressive	it going
		(2) in	in box
		(3) on	on tree
		(4) -s plurals (regular plurals)	my cars
Stage 3	2.5-3.0	(5) Irregular past tense	me fell down
		(6) -s possessives	doggie's bone
		(7) Uncontractible copula	Are they there? Is she coming?
Stage 4	3.0-3.7	(8) Articles	a/the book
		(9) Regular past tense	she jumped
		(10) Third person regular present tense	he swims
Stage 5	3.7-4.5	(11) Third person irregular	she has
		(12) Uncontractible auxiliary	Are they swimming?
		(13) Contractible copula	She's ready. They're here.
		(14) Contractible auxiliary	They're coming. He's going.

Table 21 Brown (1973) Fourteen Morphemes

Brown also found that the results of other researchers, such as de Villiers and de Villiers (1973) and Menyuk (1969) confirm the acquisition sequence of these morphemes with only minor differences.

3.3.2. Acquisition order of morphemes in Japanese

Since Brown discovered a specific morpheme acquisition sequence in English, it seems reasonable to suppose there is a specific acquisition sequence of Japanese particles as well. However, much of the early data of first language acquisition in Japanese is derived from parents' observation and diary studies, such as Okubo (1967), who tape-recorded conversation between the author and her child from 1 to 6 years-of-age, Fujiwara (1977), a diary study of the author's son and three daughters with family

members, and Noji (1974-1977), a diary study of conversations with the author's son from birth to 6 years-of-age. Although those studies contain substantial data, comparisons and analyses are difficult since they are rather descriptive without a specific linguistic focus.

Clancy (1986) provides general stages of grammar acquisition in her study of Japanese first language acquisition by incorporating her own data consisting of 30 hours of spontaneous speech from children between 1 1/2 and 3 1/2 years-of-age, and making observations based on longitudinal studies such as Okubo (1967), Fujiwara (1977), and Noji (1974). Clancy reports that basic case markers and particles, such as *-wa*, *-mo*, *-ga*, *-no*, *-de*, *-ni*, *-to*, *-kara*, *-e*, and *-o*, emerge without error⁴⁴ in the utterances of Japanese children from 1;8 to 2;6 years-of-age and the children share a general orders for various grammatical elements. Table 22 Clancy (1985) Grammatical Development summarizes Clancy's grammatical developmental stages.

⁴⁴ Otsu (1994a) reports that all of his subjects (20 3-4 year old Japanese children) obey case dropping rules just like adults. Morikawa (1997) reports that well below 1% of the 17 month long Noji data contains case particle overgeneralization of nominative markers, such as below. Clancy (1986, p.388) suggest that the most difficult particle to learn is the subject marker, *-ga*.

Raaz- *ga (o) akatyan (ga) miteru yo.
 radio-nom baby prog-watch-emphatic
 Morikawa (1997, pp.56)

Also, Matsuoka reports that non-adult-like usage of accusative marker is found. Each of her three children's data contained 3.5%, 12%, and 1.5% errors. Both of the two actual non-adult like utterances listed in her appendix (p. 96) are misuse of an accusative marker instead of a correct nominative marker with an intransitive verb.

<p>1st stage</p> <ul style="list-style-type: none"> • Before 2 years of age • 2 word utterances begin to appear 	<ul style="list-style-type: none"> • Verbal inflections (imperative and the past tense) • The three most common sentence-final particles - <i>yo</i>, <i>-ne</i>, and <i>-no</i>. • The genitive particle <i>-no</i> • Topic <i>-wa</i> with raising intonation • Deictic of <i>ko</i> series • Yes/No questions • Wh-questions
<p>2nd stage</p> <ul style="list-style-type: none"> • 2 years of age • 2 word utterances become very frequent 	<ul style="list-style-type: none"> • Verb <i>-te</i> form • Non-past progressive <i>-te ru</i> • Completed past <i>-chatta</i> • Case particles <i>-ga</i> and <i>-ni</i> • The particle <i>-mo</i>, <i>-de</i> • An increase in the number of verbal inflections • Combine more than one sentence-final particle in sequence at the end of utterances • Sentence final particles, <i>-ka</i>, <i>kana</i>, and <i>-naa</i> • <i>NP mo NP</i> (both NP and NP) • Quoting speech <i>iu</i> • Complete present <i>-chau</i> • Potential <i>-eru</i> • Polite ending <i>-masu</i> • Polite cohortative <i>-mashoo</i> for some children • Sentence final particle <i>-wa</i> for feminine speech • Case particle <i>-o</i> • Concatenated verb formations: <i>V-te kuru</i> and <i>V-te oku</i> • Benefactive construction: <i>V-te ageru/kureru/morau</i> • Conjunctions: <i>kara</i> 'because', <i>tara</i> 'if', <i>temo</i> 'even if' • <i>V-ni iku/kuru</i> (to go/to come) • Earliest relative clause
<p>3rd stage</p> <ul style="list-style-type: none"> • The first half of the third year 	<ul style="list-style-type: none"> • Passive • Polite past and negative • More conjunctions: <i>noni</i> 'although', <i>node</i> 'since', <i>-nagara</i> 'while', <i>toki</i> 'when' • Conjoining sentences using <i>shoshite</i> 'and then', <i>sorede</i> 'and then', and <i>dakara</i> 'so' Embedded clauses with <i>koto</i> 'thing', <i>tokoro</i> 'place', and <i>hoo</i> 'way'

After the 3rd stage	<ul style="list-style-type: none"> • Sociolinguistical development (formal context) • Gender specific speech styles • More complex system of honorifics and formal pronouns (early primary to lower high school age)
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Table 22 Clancy (1985) Grammatical Development Stages

3.3.3. Previous studies on particle acquisition order in Japanese

Since there is a general acquisition sequence of grammatical morphemes, it seems reasonable to suppose there is a particular acquisition sequence of Japanese particles as well. However, little in the literature discusses the acquisition sequence of particles, and the only comprehensive study is done by Clancy (1986). The main focus of particle acquisition studies are typically the case markers (nominative *-ga*, accusative *-o*, and dative *-ni*), or sometimes one particular particle, such as Matsuoka's (1998) study of *-ni*, or one particular type of particle, such as Sentence Final Particles (SFPs) in Shirai, Shirai, and Furuta (2002). These studies lack a global picture of all types of particles.

Clancy (1986), in her study of Japanese language acquisition, provides a general acquisition order as part of the acquisition of grammar. According to her survey, the first stage is marked by the appearance of contrastive usage of certain verbal inflections including the imperative and past tense, Sentence Final Particles *-yo*, *-ne*, and *-no*, and the genitive particle *-no* to mark possession. The topic marker *-wa* also appears in this stage with rising intonation following nouns in a question⁴⁵. Also during this stage, two word utterances begin to appear and they definitely occur before 2 years of age. In the second stage, two word utterances become very frequent, more SFPs and case

⁴⁵ For example, "Papa-wa?" can mean 'what about/where is papa?' (Clancy 1986, p.381)

particles start to appear. This occurs during the second year of the child's life. The particle *-mo*, additional SFPs such as *-ka*, *-kana*, *-naa*, and stacked SFPs at the end of utterances also appear, as do case particles, the nominative *-ga*, the locative *-ni*, and the instrumental *-de*. In the third stage, the first half of the third year of a child's language development, Clancy finds that the dative *-ni*, genitive *-no*, and direct accusative *-o*, typically appear.

Miyahara (1974) conducted a longitudinal study of Noriko⁴⁶ and her results mostly concur with Clancy's. Miyahara reports that most particle acquisition takes place between 1;6 to 2;0. She describes how SFPs are acquired first, followed by case particles. Her data shows that SFPs, such as *-ne* and *-yo* are used frequently by age 1;8, the case particle *-ga* and *-wa* appear at almost at the same time around 1;8, and *-o* appears later around 1;11.

Matsuoka (1998) analyzed three corpora, the Aki corpus (Miyata 1995), the Noji (1974), and the Kan corpus (Matsuoka, 1998) to investigate case particle acquisition. She observed a universal sequence of nominative, accusative, locative/dative case acquisition among the three corpora. Matsuoka concluded that *-ga* appears before *-o* or *-ni*⁴⁷ despite different patterns seen in her adult utterance data. Also, the study indicates that children initially assume that the *-ni* particle simply marks physical location. Then, the re-learning of datives as case particles is triggered by omitted *-ni* particles because only dative *-ni* can be dropped in casual speech.

⁴⁶ Noriko is the oldest daughter of a university teacher; she was born in 1966 in Fukuoka, Japan.

⁴⁷ The appearance of case particles among the three corpora is summarized in the following:

	Aki	Kan	Sumihare
-ga	2:2;22	2:2;3	1:11
-ni	2:9;7	2:2;7	2:1
-o	2:4;29	2:2;14	2:0

Shirai, Shirai, and Furuta (1999) investigate SFPs in the Aki and the Ryo corpora (Miyata 1995) and the Ari and the KOK corpora (Mac Whinney and Snow 1985, Oshima and Mac Whinney 1995). Their findings are also in accord with Clancy's (1986) result. Children begin to use SFPs in the early stages of acquisition. Although the timing (based on age) of SFP appearance differs somewhat among the four children, their Mean Length of Utterance (MLU) is consistent. For example, the appearance of *-ne* was at age 2;00 for Aki, 1;10 for Ryo, 1;06 for Ari, and 1;09 for Kok, but *-ne* appears at a MLU of between 1.1 to 1.2 for all children.

3.4. How to view language acquisition: two opposing view approaches

So far, I have discussed some studies on the primary input data on the children's performance, but what are the theories that connect Mother's speech and the child's performance? Let us look at two approaches that provide accounts of how adult-to-child speech might be linked to acquisition: innate and statistical approaches.

3.4.1. Innateness approach

On a nativist view, every human infant is born with the set of rules for all possible human languages. This set of rules is called Universal Grammar (UG). Language acquisition is viewed as a process by which a child (regarded as a Language Acquisition Device, LAD) takes as input primary linguistic data from the environment (target language utterances in a discourse context), searches through the hypotheses that she

or he innately has access to, tests them for compatibility with the input, and produces the grammar of her native language as output (Chomsky 1965, p.31-33).

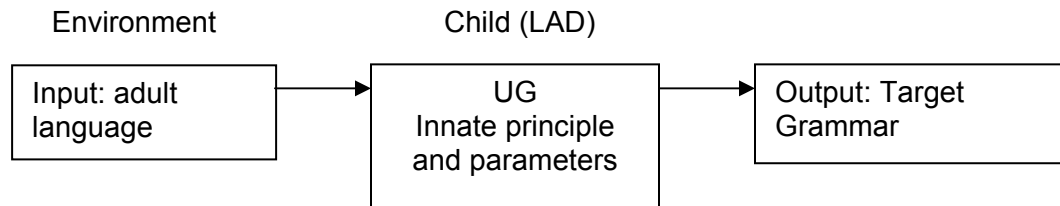


Figure 1 Language Input to Output (Innate UG)

The LAD is like a black box. Its internal structure and operations are not directly observable and must be uncovered by research. The two questions we are interested in here are, (i) what occurs at the very early stages of syntax learning⁴⁸ and (ii) how does the child initially relate basic sentence structure to the pairing of sound and meaning observed in the speech of the adults around him or her.

One proposal to explain how the child discovers the first basic facts about the grammar of their language, for example, is called the “bootstrapping hypothesis.” Pinker (1989, 1994) describes the “semantic bootstrapping hypothesis” which offers an explanation of how children begin to learn abstract sentence structures using semantic structure mediated by UG linking rules. His view is expressed in the following:

...children innately expect syntax and semantics to be correlated in certain ways in the speech that they attend to, can derive the semantic representation by nongrammatical means (attending to the situation, making inference from the meaning of individually acquired words), and can thereby do a preliminary syntactic analysis of the first parental utterances they process (Pinker 1989, p.360)

For example, suppose a child hears the sentence (50)

(50) Ally eats cookie.
X Y Z

⁴⁸This discussion concerns the learning of syntax only.

If the child knows that X=a person, Y=action, and the Z=thing, the child can assume X and Z are nouns and Y is a verb by the help of UG linking rules. The child can then infer S→SVO (rather than SOV, or some other UG compatible combination) in his or her language. When Y is recognized as a verb (or as a predicate), and Z is recognized as an argument, then the child arrives at the hierarchical structure of (50), Y is a VP that includes Z. Semantic bootstrapping assumes two things. First, the child's perceptual and cognitive mechanisms are enough like adults (at least in situations where the adult and the child interact), and, second, parents use word meanings close to the child's conceptual representation, so that the event-category labeling will be accurate. These assumptions also explain that some early verb meanings are learned without syntax.

“Syntactic bootstrapping,” another version of bootstrapping, is proposed by Gleitman (1990). On her view, children learn verb meaning from the relevant argument structure or subcategorization frames. The study of three congenitally blind babies reveals that learning word meaning by observation, as in Pinker's semantic bootstrapping, can sometimes be problematic since the blind babies presumably share the knowledge about vision-related terms like *look* and *see*. The analysis of the environment of the mother/blind child interaction shows that *look* and *see*, used as perception verbs exhibit quite different subcategorization frames. Therefore, Gleitman proposes the following and refers to the idea as “syntactic bootstrapping”:

The range of subcategorization frames has considerable potential for partitioning the verb set semantically, and that language learners have the capacity and inclination to recruit this information source to redress the insufficiencies of observation. (Gleitman 1990, p27)

Pinker (1994) points out that the subcategorization frames can help to narrow down the meaning of a verb when a learner encounters multiple perspectives on an event, yet “syntactic bootstrapping” has a logical limitation. Pinker points out that syntactic

bootstrapping does not explain where syntax comes from, since the theory entails that no verb meanings can be learned without syntax. Also, he argues that the mode of perception is not important, providing that a child can observe the situation of how the concept is used.

Although “semantic bootstrapping” and “syntactic bootstrapping” do not agree as to how language acquisition begins, both assume some innate language understanding provided by UG. On the other hand, a recent trend is to use statistical and emergentist methods to explain language acquisition. The statistical method makes the assumption that there is no internally generated UG to link the meaning and syntactic structure; a child learns only what is present in the input. The non UG approach is discussed next.

3.4.2. Non UG approach

A second approach to language acquisition is to assume that there is no UG. Assuming there is no help from UG, this kind of theory creates a paradox: how can a child parse the input without knowing the syntactic property of the words?

An example of the non-UG approach is the probabilistic approach found in Brent (1994). Brent claims that neither semantic nor syntactic bootstrapping is sufficient to answer the “bootstrapping problem.” Instead, Brent proposes that function morphemes (auxiliary verbs, prepositions, determiners, inflections, complementizer, and pronouns), which are the most frequently occurring morphemes in any corpus, provide a good deal of probabilistic information about syntactic structure. Brent conducted a maternal input simulation experiment using 31,782 child-directed utterances (where the children’s ages ranged between 1;0 and 2;6) from the CHILDES database to test if the surface functional cues (function morphemes) and statistical inference (which in Brent’s study is

the probability of a particular verb occurring and the likelihood of a particular function morpheme being adjacent to it) can provide an effective parsing strategy. The result suggests that the subcategorization is successfully identified in simulated child-directed speech involving NP NP (double object), infinitive verbs, and prepositions (*in, on to*), and also appears to identify V+NP and tensed clauses. Based on the result, Brent concludes that in the early stages of language acquisition, children can use distributional analysis to parse unknown sentences.

Tomasello (2000) equates linguistic competence and performance which leads to the proposal of a “Usage-based” theory of child language acquisition, where the child learns grammatical categories as s/he is exposed to the input⁴⁹. However, Lids, Gleitman & Newport (2003) report that this “emergentist” view is not supported by results from the observation of causative morphology in Kannada speaking children in India. The children utter causative sentences without the causative morpheme [*is*], although the morpheme is very visible in the input. If the meanings are learned one by one from the input, then [*is*] must be present at any time in the children’s output.

Although the following two studies are not based on an emergentist theory, interestingly the results of the studies indicate that some distributional learning from the input is taking place in Japanese children.

Mayes and Ono (1993) examined the acquisition of the subject marker, *-ga*, using computerized data from the Noji corpus (ages 1;11 to 2;5). They analyzed the occurrence of *-ga* with different predicate types (intransitive verb, transitive verb, plain form adjective, and copula verb), and found that the occurrences of *-ga* are most frequent in sentences with transitive verbs (81.8%), second with intransitive verbs

⁴⁹ Because of his extreme emergentist view, I believe some methods that were used in the experiments contradict what he claims. For example, using sentence patterns like, “This is called gopping. What’s happening?” to elicit a child’s productive usage of a verb seems an improbable input pattern in actual child-directed speech. Also, for the same reason, Tomasello misinterprets many concepts in the generative framework, such as overgeneralization and linguistic competence of child, in his critique of UG-based acquisition.

(75.4%), third with adjectival predicates (46.2%) and sentences with copula, the least (50%), at age 2;5. The result was strikingly similar to the frequencies of the caretakers' input. Therefore, Mayes and Ono concluded that there's no evidence that the child uses a pre-existing innate category for the agent that aides the acquisition of the child's *-ga* marking; instead they learned the pattern statistically. Morikawa (1997), who analyzed the same corpus from 1;11 to 3;3, is in accord with Mayer and Ono. She also reports that the distributional encoding patterns of Sumihare's case markings were heavily dependent on the parents' case marking pattern.

In sum, after discussing the problems that the primary L1 source may present to the child language learner, the following three issues must be studied: (i) the nature of L1 source, i.e., exactly how child-directed speech (the primary L1 source) and adult-to-adult (indirect L1 source) are similar and different, (ii) the sequence of particle acquisition (beginning with whether there even *is* a particular acquisition sequence of particles), and (iii) the relationship between the primary L1 source and the acquisition sequence, i.e., does the L1 source influence a child's particle acquisition or not?

Chapter 4: Analysis of Corpora

In order to answer the three questions posed at the end of Chapter 3, two sets of corpora, one adult-to-adult telephone conversation corpus, the CallHome Japanese (CHJ) corpus, and three mother-child dyads from Japanese CHILDES (JCHAT) are analyzed. In Chapter 4, I describe each corpora, explain the methodology of analysis, and detail the results.

4.1. CHJ

4.1.1. The description of the CallHome Japanese corpus

The CallHome Japanese (CHJ) corpus of speech was analyzed in order to provide a comparison of a representative sample of non-child directed, i.e., adult-to-adult natural speech. The CHJ data was obtained and transcribed by the Linguistic Data Consortium (LDC) as a part of a speech recognition project sponsored by the U.S. Department of Defense.

The CHJ (LDC 1996) is a collection of 220 recorded spontaneous telephone conversations between native speakers of Japanese residing in the United States/Canada and close friends or family members in Japan. The conversations took place between June 17 and November 15 in 1995. 100 of the 220 files are currently withheld in reserve for future studies and the remaining 120 files, which consist of 80 files of 10 minute excerpts, 20 files of 100 minute excerpts, and 20 files of 5 minute excerpts, are available to subscribers of the LDC.

These 120 files were audited, verified for proper language usage and quality, and then transcribed into 120 files in Japanese orthography⁵⁰ (Kanji, Hiragana, Katakana, and Japanese punctuation marks) in conjunction with special characters, such as @, %, { }, ! and ?, and some alphabetical symbols for commonly used borrowed nouns, such as CD and DVD, and English phrases, as shown below in Figure 2.

120.20 123.35 A: 嘘、@私[[あたし,col]] 職がなくてさ日本に帰ったら。
123.26 123.70 B: うん。
123.28 128.50 A: トニーのお誕生日九月二日だから@何か[[なんか,col]] 買ってあげようと思ったけど、@私[[あたし,col]] さ無職の人間だ {laugh} 。
128.47 129.85 B: %うー うん うん。
128.75 133.75 A: うん だからね、ここに今今ね @私[[あたし,col]] 十万しか @残っていない[[残ってない,col]] んだ、十万で一ヶ月過ごすんだ。
133.81 135.63 B: %えー 過ごせるよ。
135.15 140.15 A: 過ごせないよ。お土産 たってまだCD いっぱい買おうと思って。%あっね、クリオ もう発売している？
138.40 138.99 B: うん うん。
140.46 141.15 A: CD。
141.17 142.88 B: 分からない (()) [[distortion]]
141.69 143.11 A: 買ったの @私[[あたし,col]] だ。
143.01 144.32 B: 嘘！
143.49 144.19 A: 本当。
144.44 145.88 B: もう貸して。 {laugh}
145.30 147.68 A: うん、 {laugh} いいよ。いっぱいCD買ったよ。

Figure 2 Excerpt from Original CHJ File 0696

4.1.2. Information on the participants

The participants in this project were solicited by the LDC through the internet and personal contacts. All participants, both callers and the recipients of the phone call, were reminded and acknowledged that they were to be recorded. The callers were allowed to make one telephone call once which could last up to 30 minutes free of charge.

⁵⁰ See the further description of Japanese orthography in Section 1.1.

4.1.2.1. About the participants

The identities of the CHJ participants are not disclosed yet partial demographic data of the callers is provided by LDC. The 120 files involved 120 callers and 139 recipients (multiple recipients existed on eighteen of the conversations). According to the callers' self-reported demographic information, the age of the callers ranges between seventeen and fifty-eight years; they average age is 34.09 years (based on available data from 75 of the 120 participants). The length of education ranges between eight and twenty-two years and the average is 14.78 years (based on information available from 87 out the 120 participants).

The gender of the callers is 69% (83/120) female and 31% (37/120) male. The gender of the recipients is 83% (100/139) female and 17% (20/139) male.

4.1.2.2. The participants' dialects

According to the information on the dialects of the speakers, which is based on the judgments of native speakers who audited to the calls at LDC, 58% (156/269) of the participants spoke standard Japanese (including Yokohama dialect and near standard), while the rest of the participants spoke various regional dialects, such as Kansai (33), Kyuushuu (38), Northern (9), Tohoku (8), and other (25).

In my study, I dismissed twenty-four files that contained significantly anomalous usages of sentence final particles from the standard Japanese due to the prominent regional dialect.

4.1.2.3. Style of conversation

The conversations between the caller and the recipient(s) are mostly informal. The caller and recipient(s) constantly take turns in their conversation. Many sentences are initiated with hesitation words, such as “uun” “eetto” and “aa” which roughly translate to “oh, well...” The dialogues can be short, incomplete, and often involve disjointed comments, repetitive phrases, interruption, and afterthoughts. Also, ellipsis of various kinds, such as particles, NPs, verbs, and clauses, occur frequently. The dialogues include laughing, background noise, and overlapping speech, which I deleted from my analysis. The topics of conversation changed frequently, initiated by either the caller or the recipient, with no apparent reason or purpose. The participants talked about their daily lives, school and classes, weather, vacations, returning to Japan, going places, attending a wedding/funeral, meeting someone, gossip, and such.

4.1.3. Analyzing the CHJ corpus

Since the original CHJ is in Japanese orthography, it was first converted into Romaji, the alphabetical transcription of Japanese pronunciation by KAKASI-2.3.4, Kanji Kana Simple inverter, a free software program that converts Kanji, Hiragana, and Katakana, into Romaji, developed by Masahiko Sato at Tohoku University. Figure 3 shows an example of aCHJ file converted to Romaji.

120.20 123.35 A: USO ;¢ @ WATASHI [[atashi ,col]] SHOKU ga nakute sa NIPPON ni
KAETTA ra ;£
123.26 123.70 B: un ;£
123.28 128.50 A: toni^ no o TANJOU BI KUGATSU FUTSUKA da kara @ NANIKA
[[nanka ,col]] KATTE age you to OMOTTA kedo ;¢ @ WATASHI [[atashi ,col]] sa
MUSHOKU no NINGEN da {laugh} ;£
128.47 129.85 B: % u ^ un un ;£
128.75 133.75 A: un dakara ne ;¢ koko ni IMA IMA ne @ WATASHI [[atashi ,col]] JUU
MAN shika @ NOKOTTE i nai [[NOKOTTE nai ,con]] n da ;¢ JUU MAN de IKKAGETSU SUGO
su n da ;£
133.81 135.63 B: % e ^ SUGO se ru yo ;£
135.15 140.15 A: SUGO se nai yo ;£ o MIYAGE tatte mada C D ippai KAO u to OMOTTE
;£ % atsu ne ;¢ kurio mou HATSUBAI shite i ru ;©
138.40 138.99 B: un un ;£
140.46 141.15 A: C D ;£
141.17 142.88 B: WAKA ra nai (())[[distortion]]
141.69 143.11 A: KATTA no @ WATASHI [[atashi ,col]] ;£
143.01 144.32 B: USO ;^a
143.49 144.19 A: HONTOU ;£
144.44 145.88 B: mou KASHI te ;£ {laugh}
145.30 147.68 A: un ;¢ {laugh} ii yo ;£ ippai C D KATTA yo ;£

Figure 3 Romanized CHJ File 0696

After Romanization, the CHJ was further edited manually in two stages: (i) the elimination of non relevant-information and (ii) disambiguation and categorization. In the first elimination stage, data that are irrelevant and would complicate, due to their disarray, are eliminated from the study. The following categories of words and phrases were the target of elimination: the time counters in every line, noise (such as laughs and sneezes), unintelligible words and phrases, simultaneous speech, speech in another language, and background noise, such as distortion and buzzing. Figure 4 shows the corpus after the elimination of non-relevant information.

a: uso , watashi shoku ga nakute sa nippon ni kaetta ra .
b: un .
a: toni no o tanjoubi kugatsu futsuka da kara nanika katte age you to omotta
kedo , watashi sa mushoku no ningen da .
b: u un un .
a: un dakara ne , koko ni ima ima ne watashi juu man shika nokotte i nai n da ,
juu man de ikkagetsu sugo su n da .
b: e sugo se ru yo .
a: sugo se nai yo . o miyage tatte mada c d ippai kao u to omotte . atsu ne ,
kurio mou hatsubai shite i ru ?
b: un un .
a: c d .
b: waka ra nai
a: katta no watashi .
b: uso !
a: hontou .
b: mou kashi te .
a: un , ii yo . ippai c d katta yo .

Figure 4 Cleaned CHJ File 0696

Also, 25 files spoken with significantly strong Japanese regional dialects (Kansai, Hiroshima, and Kyuushuu) are deleted since they have systematically variable usage of verbal endings, conjugation, and Sentence Final Particles (SFP).

As a result of Romanization, serious homophone problems occurred with very common morphemes and those words had to be manually disambiguated at the initial part of the second stage. For instance, the number three, the word for mountain, and an honorific suffix denoting Mr., Mrs., and Ms. are unambiguous since they have different orthographic forms in normal Japanese orthography, yet all have the same phonological form and hence orthographic form, [san], in Romanization.

Phonological form	Romanization	Meaning	Orthographic form
[san]	san	three	三
[san]	san	mountain	山
[san]	san	Mr., Mrs., and Ms.	さん

Table 23 Homophone [san]

Other examples of homophone problems are [ni] (the number two and particle -ni), [ši] (the number four, a noun to denote ‘death’), and a honorific suffix for Mr., [go] (the number five, a suffix to denote a name of language, adverbial time expression ending, and an honorific prefix), and *-ne* (a SFP and an interjection).

4.1.3.1. Disambiguating particles

After resolving homophone problems, the particles *-no*, *-ni*, and *-kara*, were classified into specific categories since they are also ambiguous. The particle *-no* can be a SFP or ‘nominalization *-no*’ (which forms an NP by combining two nouns or by modifying an adjective and sentence).

(1) Two kinds of *-no*

A. SFP to soften the statement

Tabeta *-no*.
 eat SFP
 “(I) ate”

B. ‘Nominalization’

1. Connecting two nouns

[watashi *-no* inu] NP
 I 's dog
 “My dog”

2. Nominalizing

Taberu *-no -wa* ii.
 eat nominalizer -TOP good
 “Eating is good”

In much of the literature on Japanese, the particle *-ni* is commonly identified as a dative marker. However, that is not actually precise because not all occurrences of *-ni*

mark a dative NP under a ditransitive verb. For that reason, I have defined seven types of *-ni* according to their specific distribution patterns⁵¹.

The seven types of *-ni* particles I use are: (i) dative, (ii) physical location in space, (iii) abstract location in temporal continuum or time expression, (iv) adverbial ending, (v) physical goal, (vi) conceptual goal, and (vii) idiomatic expression, as summarized in Table 24.

⁵¹My categorization of particle *-ni* does not completely agree with that of Matsuoka (1998). For example, Matsuoka separates particle *-ni* into dative particles and post-positions. In her analysis an NP-*ni* that occurs in the passive construction is classified as a postposition.

Specific <i>-ni</i> category	Distribution	Examples
Dative	When a verb has two internal arguments, i.e., S allows <i>-ga</i> , <i>-ni</i> , and <i>-o</i> . Includes causative verbs.	<i>-ni</i> (to give) <i>ageru/yaru/</i> <i>-ni</i> (to receive) <i>morau/itadaku</i> <i>-ni</i> (to change) <i>kawaru</i> <i>-ni</i> (causative verb <i>-sare/rare</i>)
Adverbial ending	When an NP+ <i>ni</i> exhibits the same distribution as an adverb.	(truly) <i>hontou-ni</i> (certainly) <i>tashika-ni</i> (together) <i>issho-ni</i> (previously) <i>mae-ni</i>
Physical goal	When (an NP physical location) <i>-ni</i> can be replaced with "e". This <i>-ni</i> only occurs with verbs describing a motion to a certain direction.	<i>-ni</i> (to go) <i>iku</i> <i>-ni</i> (to come) <i>kuru</i> <i>-ni</i> (to return) <i>kaeru</i> <i>-ni</i> (to return to origin) <i>modoru</i> <i>-ni</i> (come -command) <i>oide</i>
Physical location	When (an NP physical location) <i>-ni</i> cannot be replaced with "e" and if the predicate is an action predicate, then it can be replaced by "de".	<i>-ni</i> (exist) <i>iru/aru</i> <i>-ni</i> (copula) <i>desu</i> <i>-ni</i> (to write) <i>kaku</i> <i>-ni</i> (to make) <i>tukuru</i>
Conceptual goal	When NP- <i>ni</i> co-occurs with <i>-suru/naru</i>	<i>-ni</i> (to become) <i>naru</i> <i>-ni</i> (to decide on) <i>suru</i>
Time expression	NP(time/calender expression) <i>-ni</i>	(3 o'clock) <i>sanji-ni</i> (next week) <i>raishuu-ni</i> (Friday) <i>kinyoobi-ni</i>
Idiomatic expression	When a verb selects certain NP- <i>ni</i> forming fixed expression. No replacement of "e/de" is possible. Complex V expression, <i>-ni iku/kuru</i> is also included in this category.	(I can visualize it) <i>me-ni ukabu</i> (to embarrass someone) <i>kao-ni doro-o nuru</i> (to go to eat) <i>tabe-ni iku</i>

Table 24 Specific *-ni* Category

The particle *-ni* is considered to be a dative marker when a predicate (i) has two internal arguments, i.e., allows nominative marker *-ga*, dative marker *-ni*, and accusative marker *-o* within the same sentence or (ii) contains a causative morpheme *-(s)ase-* or a passive morpheme *-(r)are-*.

(2) Dative (with a ditransitive verb)

Watashi -ga Tommy -ni presento- o ageru.
I -nom Tommy -Dat present-Acc give
"I (will) give Tommy a present."

(3) Dative (with a causative verb)

Sooji-o ototoo -ni yarasete.
Cleaning-Acc brother -Dat do -causative ending past
"(I made) my brother clean (the room.)"

The particle *-ni* is classified as physical location *-ni* when it attaches to an NP that refers to a physical location, such as the name of a city, place, or direction.

(4) Physical location

Koko -ni iru.
Here -physical loc exist
"(I) am here"

Further, when an NP marked with physical location *-ni* appears with an action predicate, the NP will be marked by particle *-de* (for location of an action).

(5) Physical location with an action predicate

Koko -de benkyousuru.
Here -at study
"(I will) study here."

When the particle *-ni* appears with a time expression or calendar expression⁵², it is classified as time expression *-ni*.

(6) Location in temporal continuum or time expression

Sanji-ni okiru.
Three o'clock get up
"(I will) get up at three o'clock."

When an NP with *-ni* exhibits the same distribution as an adverb, it is considered to be 'adverbial ending *-ni*'.

⁵² The time expression *-ni* may overlap with adverbial *-ni*.

(7) Adverbial ending

shizen -ni suru.
natural adverbial ending do
“(Do something) naturally”

When *-ni* attaches to an NP that refers to a physical location, such as the name of a city, place or direction, with a verb describing directionality, such as ‘to go/come/return’, it is considered to be ‘physical goal *-ni*’.

(8) Physical goal

Tokyo -ni iku.
Tokyo go
“(I will) to Tokyo.”

The ‘physical goal *-ni*’ can be replaced by particle *-e* which denotes terminal goal. For example, when an NP is marked with *-e*, it implies that the location is the final destination.

(9) Terminal goal

Tokyo -e iku.
Tokyo go
“(I will) to Tokyo (and that will be my destination).”

When an NP with *-ni* occurs with either of two verbs, *naru* ‘to become’ or *suru* ‘to do/decide on’, it is considered to be ‘conceptual goal *-ni*’ since those two verbs describe a person’s future goal and decisions.

(10) Conceptual goal

Sensei -ni naru.
Teacher become
“(I will) become a teacher.”

Sushi -ni suru.
sushi do
“(I) decided on (the) sushi.”

Lastly, when a verb selects a specific NP with *-ni* as a fixed expression, it is considered to be ‘idiomatic expression *-ni*’. No replacement of *-de* or *-e* is possible in such an expression⁵³.

(11) Idiomatic expression

Me-ni ukabu.
Eye(s) float
“(I can) visualize it.”

Particle *-kara* is also ambiguous⁵⁴. When *-kara* attaches to an NP host, it conveys the meaning of “from” one position in physical location or time.

(12) ‘from’

Chichi-kara tegami-ga kita.
Father from letter -NOM came
“(A) letter came from (my father)”

Sanji-kara hajimatta.
Three o’clock from began
“(It) started from 3 o’clock.”

When *-kara* attaches to a host other than NP⁵⁵, namely an adjective or verb, it modifies the previous clause to express reason.

(13) ‘reason’ (since/because)

Takai-kara kawanai.
Expensive since buy -neg
“Since (it) is expensive, (I will) not buy (it).”

⁵³ Idiomatic expression *-ni* may overlap with dative *-ni*. Also this category includes complex verbal expression such as *V-ni iku/kuru*.

⁵⁴ Sentence initial, *dakara*, which is a fossilized expression that consists of the plain form of the copula verb *da* and *-kara* for describing reason, is not treated as a particle; therefore it is not included in my data.

⁵⁵ *-kara* can also attach to the *-te* form ending of a verb to express order of sequence.

Tabete -kara iku.
Eat and then go
“(I will) eat and then go.”

Since this usage was very infrequent, I included this usage in non-NP host *-kara*.

After manually tagging the different types of particles, the number of occurrences of various particles was calculated with a Perl program. The numerical results are discussed below.

4.1.3.2. Limitation of my version of the CHJ corpus

My version of the CHJ corpus is organized to make particle and MLU counts possible by a Perl program and for that purpose only. That is, many inaccurate Kanji pronunciations produced by KAKASI-2.3.4 remain uncorrected in the corpus. For example, the correct romanized conversion for the word ‘Friday’ should be [kinyou bi] but KAKASI-2.3.4 converted it into the inaccurate [kinyou nichij]⁵⁶ as shown in Table 25 below.

Original CHJ text	それで 金曜日 誕生 パーティ 行った ん だ。
Incorrectly converted text	Sorede kinyou nichij tanjou patei itta n da.
Correct text	Sorede kinyou bi tanjou patei itta n da.

Table 25 Limitation of My CHJ Corpus

4.1.4. Result

All CHJ 96 files that I used, containing both Speaker A, the data of callers who initiated the phone call and Speaker B (or B1, B2, etc.), the participants who receive the phone call from the caller, are analyzed in one file and summarized in Table 26. The most frequently used particle is the SFP *-ne* and the other particles follow: *-no* for nominalization, topic marker *-wa* which appears on the corpus Romanized as “*ha*,”

⁵⁶ This is caused by the fact that most of Chinese characters have multiple pronunciations. The appropriate reading is determined in combination with other characters or with various inflectional endings (written in Hiragana). Also, sometimes it is just idiomatic. For my purposes, the correct readings were not necessary.

nominative marker *-ga*, SFP *-yo*, 'reason *-kara* ', *-mo*, SFP-*sa*, 'adverbial ending *-ni*', SFP *-ka*, accusative case *-o* which is Romanized as "wo," various *-ni* (physical goal and location, conceptual goal, time expression, and dative) and 'from *kara*', *-dake*, *-made*, female SFP *-wa*, *-nanka*, *-e* which appears in the corpus as "he," *-shika*, *-bakari*, *-sae*, *-koso*, and *-nado*.

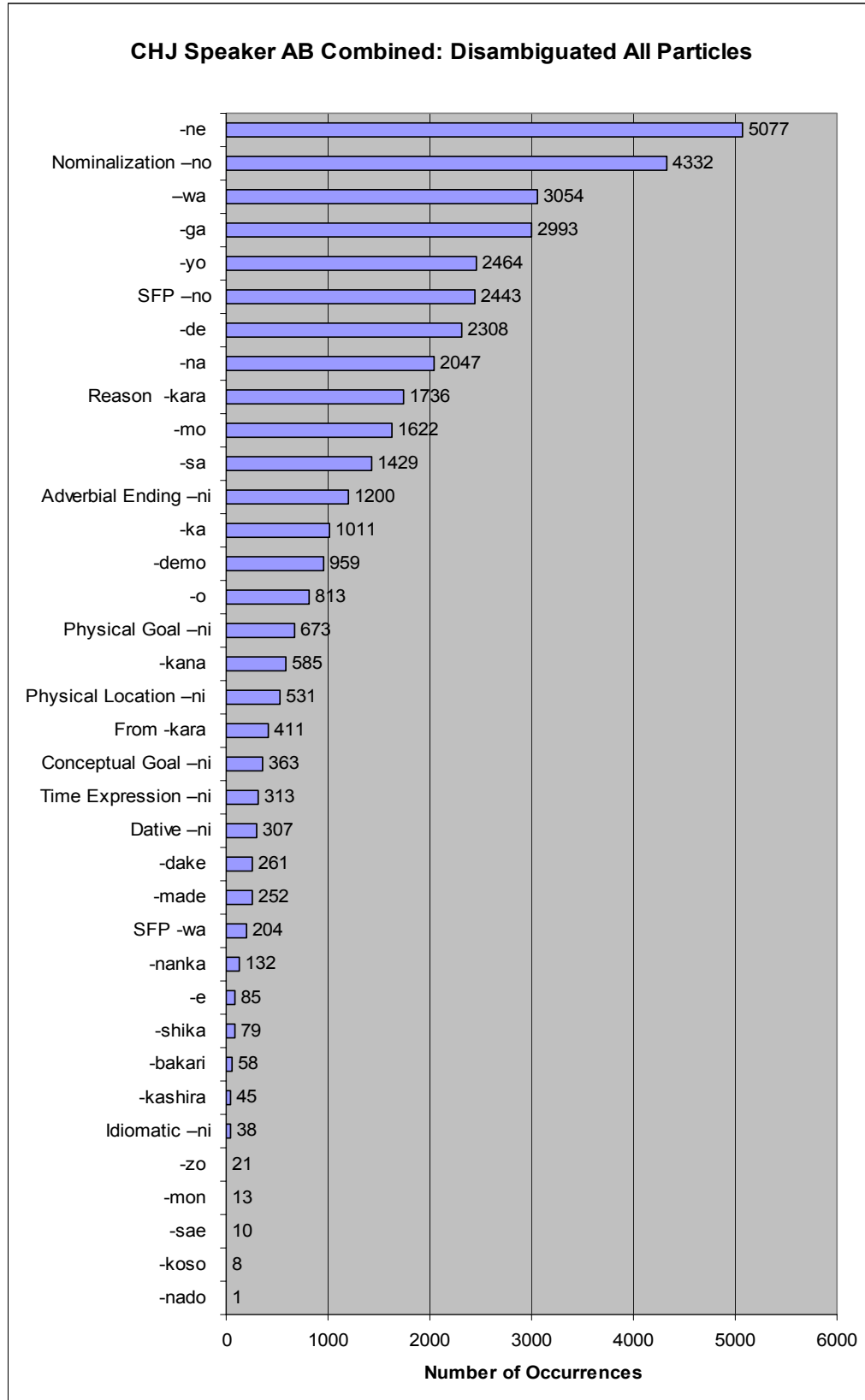


Table 26 CHJ Speaker AB Combined

In general, many of the particles that are required to form syntactically complex NPs and sentences, such as nominalization *-no*, *-to*, 'reason *-kara*', and adverbial ending *-ni*, are the most frequently occurring particles in addition to various sentence final particles. Also, the topic marker *-wa* and nominative marker *-ga* occur very often.

Moreover, very similar particle usage can be observed in individual files. For example, Table 27 shows the particle usage of file 0696 (one of the 96 files) which reveals a result that is very similar to that of the CHJ averaged together. Although the nominalization *-no* and *-ne* are reversed, they are still the two most uttered particles in file 0696, and the general pattern still fits.

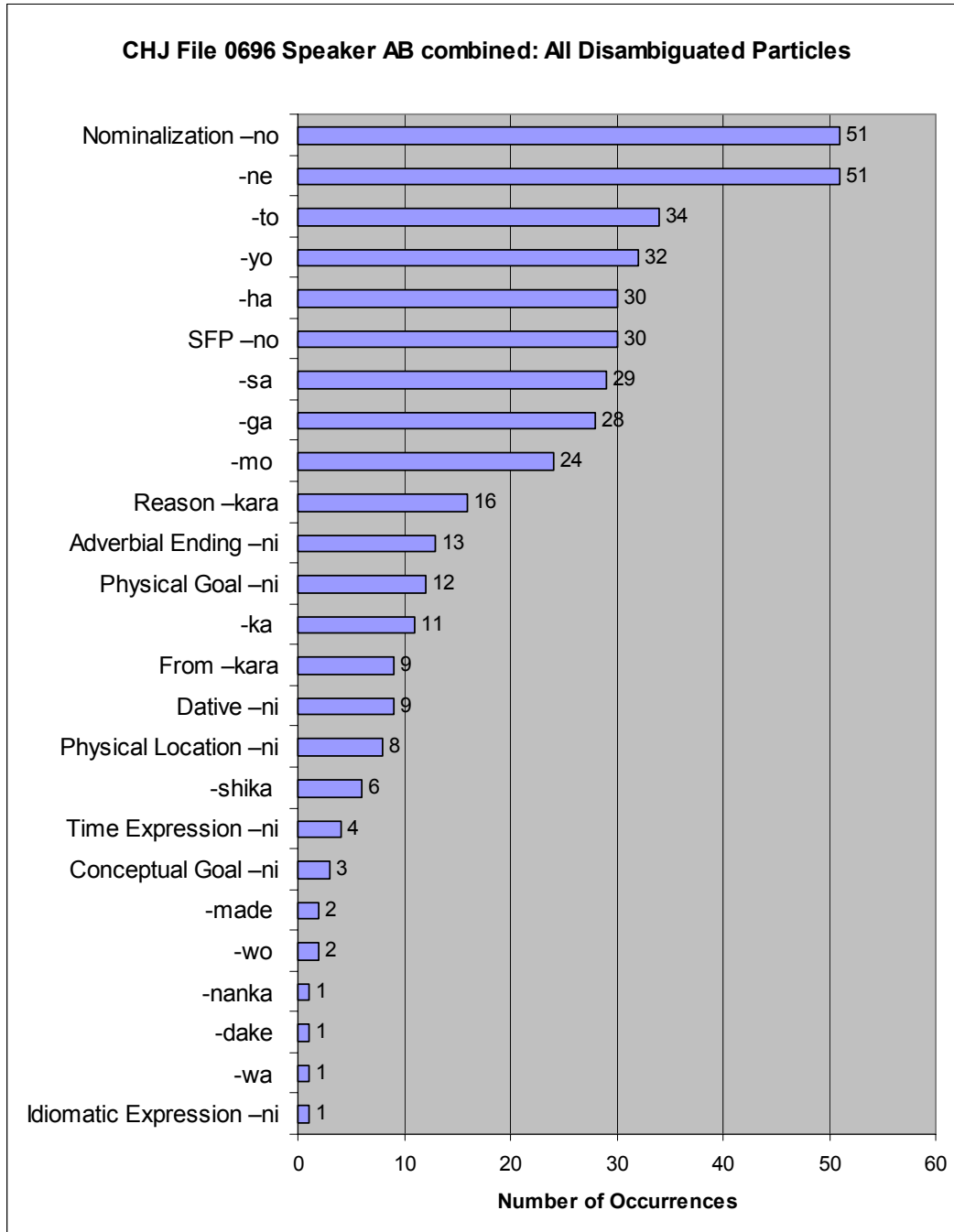


Table 27 CHJ File 0696 Speaker AB Combined

Further, when the the complete data set is split into A, the caller, and B, the recipients (note: A and B do not represent individuals but total speakers and total

excipients), the number of occurrences and the proportion of particles that are used by A and B are still extremely similar as shown in Table 28 below.

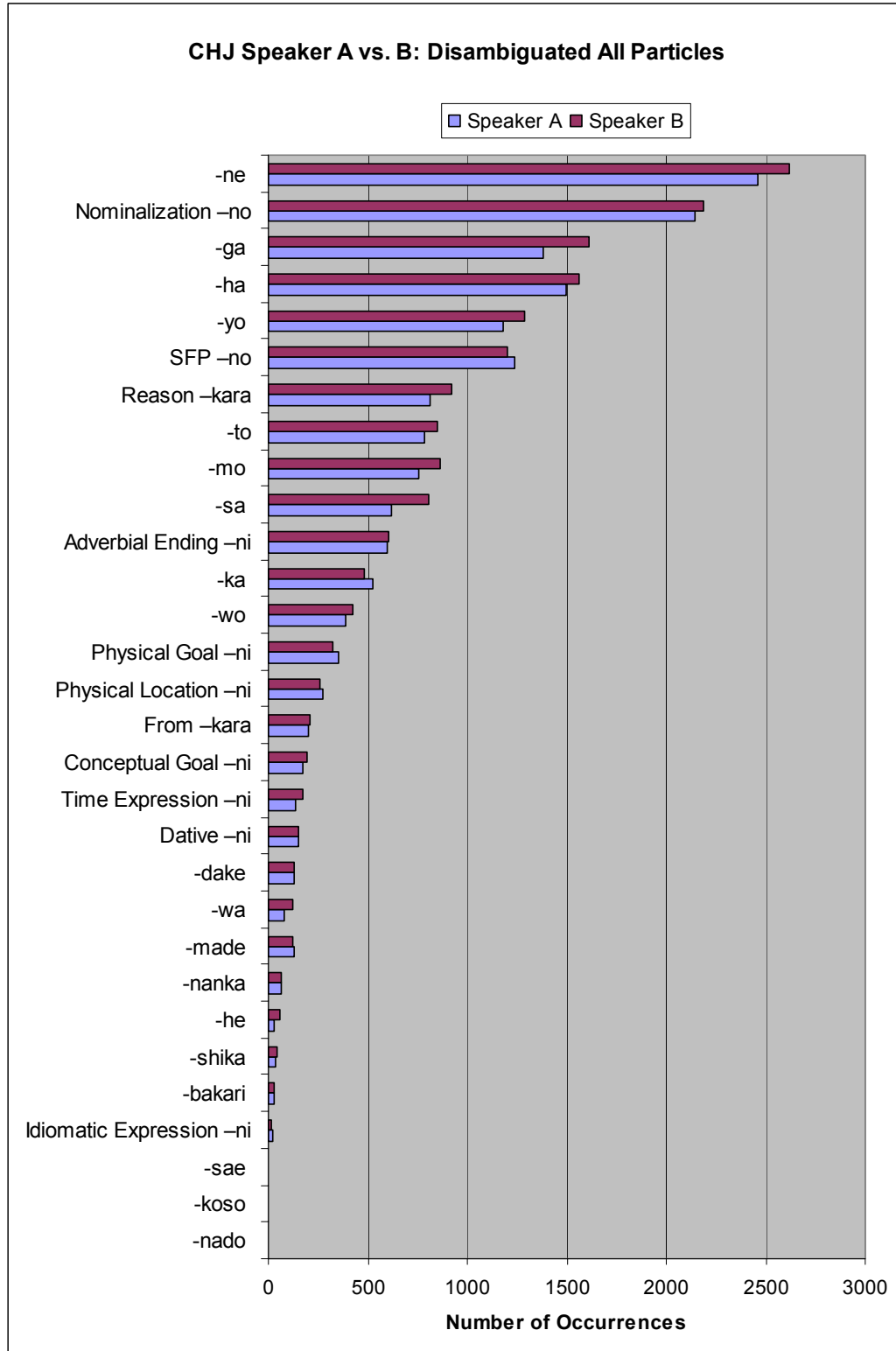


Table 28 CHJ Speaker A vs. B

This seems to indicate that when people partake in a casual conversation, the particle usage of the participants is overall very similar despite the fact that the conversation involves incomplete or disjointed sentences, turn-taking, and interruptions.

Although I analyzed CHJ to understand the patterns of usage in a sample of casual non-child-directed adult conversation, it should be noted that the result may be biased on two points. First, the data reveals that *-ne* is the most frequently used particle in adult-to-adult conversation. However, if the conversations had taken place between two people face to face rather than over the telephone, one might expect that the number of *-ne* might be smaller since the confirming of information is probably more important during a telephone conversation that lacks visual queues and confirmation. Also, female SFP *-wa* might occur less if the ratio of male and female speakers was equal since 71% (183/259) of participants of CHJ are female.

In sum, when adults talk to other adults in a casual situation, there seems to be a uniform pattern of particle usage. The most uttered particles are the SFP *-ne*, followed by the particles that are involved in forming complex NPs and sentences (such as nominalization *-no*, *-to*, 'reason *-kara*', 'adverbial ending *-ni*', subject marker *-ga*, and topic marker *-wa*. The case markers, *-o* and *-ni*, and the other mono-syllabic particles to mark different functions of NPs (such as various *-ni*) are the second most uttered particles followed by mono-syllabic particles to mark different NP functions, such as *-dake* and *-made*. The fact that the direct object marker *-o* is used more than the indirect object marker *-ni* is not surprising since the number of transitive verbs in Japanese is much greater than the number of ditransitive verbs. The lesser uttered particles are semantically complex bi-syllabic particles such as *-shika*, *-bakari*, *-sae*, *-koso*, and *-nado*.

4.2. JCHAT mothers' data

4.2.1. Description of the JCHAT corpora

Three on-line (<http://childes.psy.cmu.edu/>) corpora containing conversations of Japanese mothers and their children, the Aki corpus (Miyata 2004a), the Ryo corpus (Miyata 2004b), and the Tai corpus (Miyata 2004c) from the JCHAT project are analyzed. The JCHAT project was established as a part of CHILDES (the Child Language Data Exchange System; MacWhinney, 2000) which is a multilingual database for language acquisition research developed by Brian MacWhinney of Carnegie Mellon University and other scholars such as Catherine Snow of Harvard University in 1984. The mothers (sometimes with the lead investigator, Miyata, herself, and on rare occasions, their father and siblings) and their three children were observed while they were playing indoors once a week longitudinally. The three children were observed between 1;3 and 3;1. Ak's data runs from age 1;5.07 to 3;0 and consist of 55 sessions of 60 minutes containing 22,009 child utterances. Ryo's data runs from 1;3.03 to 3;00.30 and consist of 75 sessions of 30 minutes containing 11,310 child utterances. Tai's data runs from 1;5.20 to 3;1.29 and consists of 74 sessions of 40 minutes containing 34,942 child utterances.

Miyata held a camera and videotaped the spontaneous speech of the mother and her child during playtime which happened in the morning. All mothers had had a normal pregnancy and the children were delivered normal and healthy. Aki was born in 1987, Ryo in 1985, and Tai in 1992, all in the city of Nagoya, Japan.

4.2.2. Analyzing the JCHAT data

In order for the corpora to be usable for collecting data for my study, I first deleted all utterances made by the siblings of Aki, Ryo, and Tai. I then cleaned the corpora in three phases using a Perl program.

Phase 1 (cleaning): In part one of the cleaning phase, the program searches for the age of the child in the file and saves the age as part of the file name for later use since some file names designate the order of taping sessions. Then the second part of the program searches for human utterances, which start with “*” at the beginning of each line, and discards everything that is not a mother and child verbal interaction (such lines that indicate codes and headers such as, locations, activities, actions of the child or mother, taping time, room layout, etc.). In the final step of cleaning, the program creates two output files, one for the child’s utterances and the other for the mother’s. These are then ready for use in the next stage.

Phase 2 (tagging): In the tagging phase, a program initially searches for a word boundary which is recognized as whitespace on the right side of a string of letters. Since a space is provided before all particles, once the word boundary is located, the program then searches for the following Japanese particles: *wa* (は), *ga* (が), *o* (を), *ni* (に), *e* (へ), *mo* (も), *shika* (しか), *sura* (すら), *kara* (から), *made* (まで), *koso* (こそ), *sae* (さえ), *dake* (だけ), *bakari* (ばかり), *nado* (など), *nanka* (なんか), *ne* (ね), *yo* (よ), *ka* (か), and *no* (の). The program then inserts a dash “-” in front of those sounds to indicate the possible existence of a particle and saves them as *-wa*, *-ga*, *-o*, *-ni*, *-e*, *-mo*, *-shika*, *-sura*, *-kara*, *-made*, *-koso*, *-sae*, *-dake*, *-bakari*, *-nado*, *-nanka*, *-ne*, *-yo*, *-ka*, *-no*. In this way, the program can identify the difference between words and particles. Later on, a search program uses the information to identify particles, generate particle counts and establish words and particles for data collection.

Phase 3 (data collection): Now the program searches through each file for every single particle (i.e. *-wa, -ga, -o, -ni, -e, -mo, -shika, -sura, -kara, -made, -koso, -sae, -dake, -bakari, -nado, -nanka, -ne, -yo, -ka, -no*) to count the number of occurrences and append to an Excel file the age of the child and the number of times each particle occurs in the file for the further analysis.

In the following section, I give a general description and discuss characteristics of the three mothers' data.

4.2.3. Limitation of the Mothers' data

Miyata (1995) warns that she recorded all utterances of the children yet cut out the mothers' longer narration and some repetition. That is, the data analyzed here are limited to the mothers' speech in the context of questions and answers with their children. Therefore, it should be noted that the data that I will discuss below may not represent the whole spectrum of the primary L1 source.

4.2.4. The result

The following Table 29 shows the totals of all the particles uttered by the three mothers from when their childre were at 1;05 of age to 3;00.

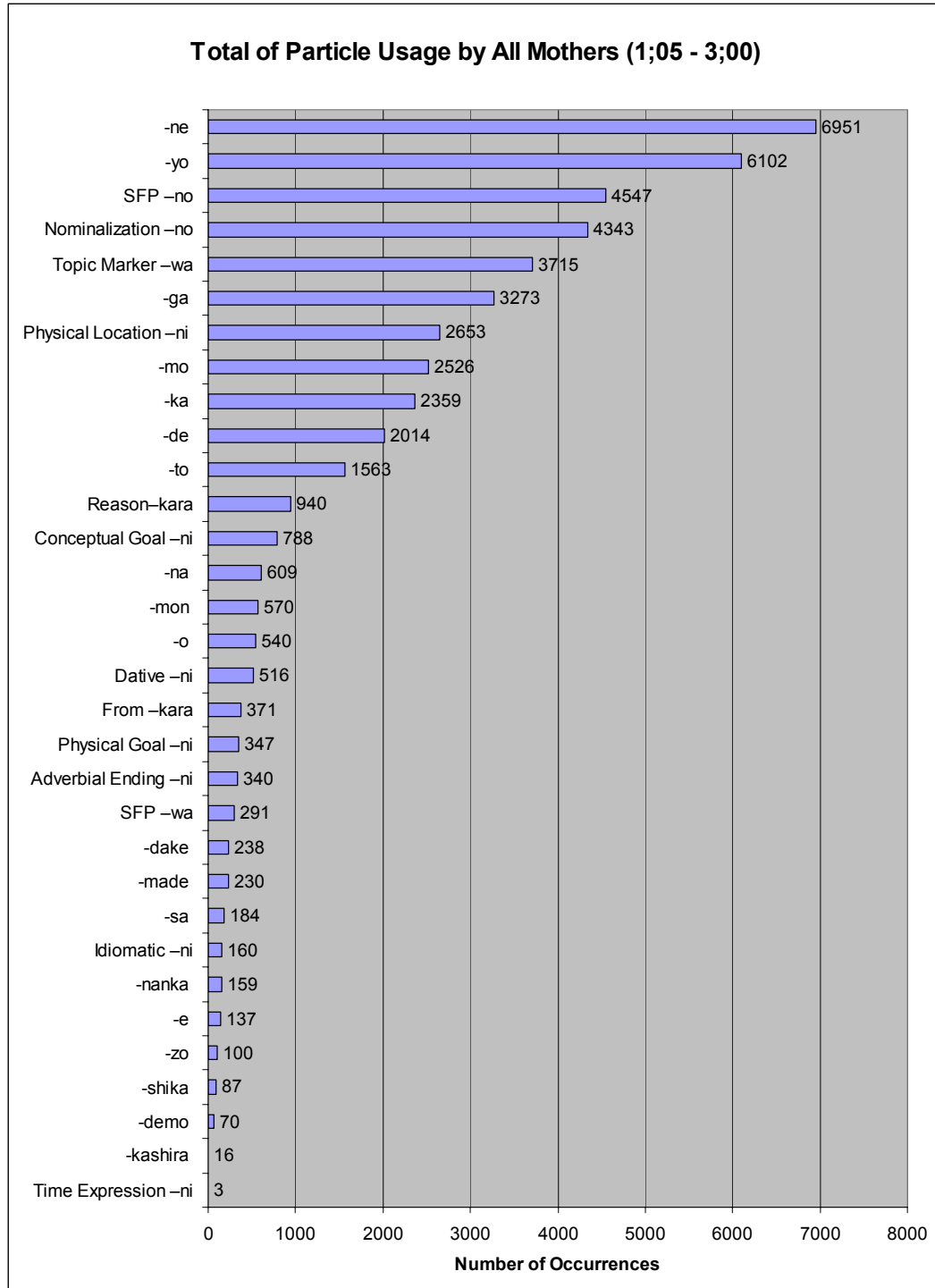


Table 29 Total of Particle Usage by All Mothers

The most used particles by all three mothers are SFP *-ne*, *-yo*, and *-no*, followed by nominalization *-no*, *-wa*, and *-ga*. Physical location *-ni*, *-mo*, *-ka*, and *-to* are the next

most often uttered particles, followed by *-kara* (reason) and *-ni* (conceptual goal) and various mono-syllabic particles. The last group of particles used the least are semantically complex bi-syllabic particles, such as *-dake*, *-made*, *-nanka*, *-shika*, *-demo*, *-kashira*, and *-bakari*, idiomatic *-ni*, and time expression *-ni*.

When the mothers' particles are compared to CHJ (cf. Table 26, CHJ Speaker AB Disambiguated All Particles), the mothers have three extra particles, *-mon*, *-kashira*, and *-zo*. Otherwise, the two charts are very similar.

Table 30 to Table 32 show the total of all the particles uttered by the individual mothers from when their child is at 1;05 of age to 3;00.

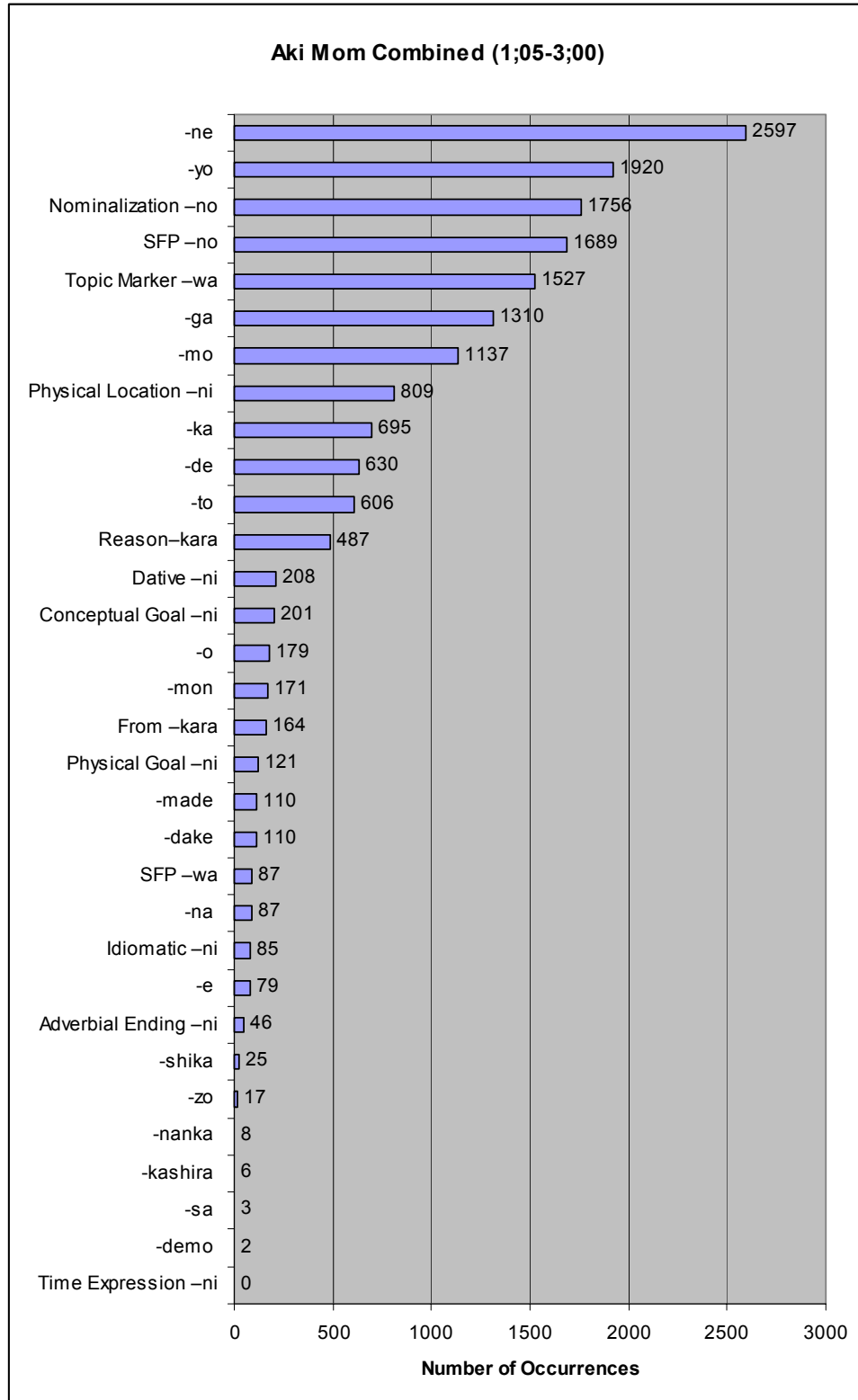


Table 30 Aki Mom Combined

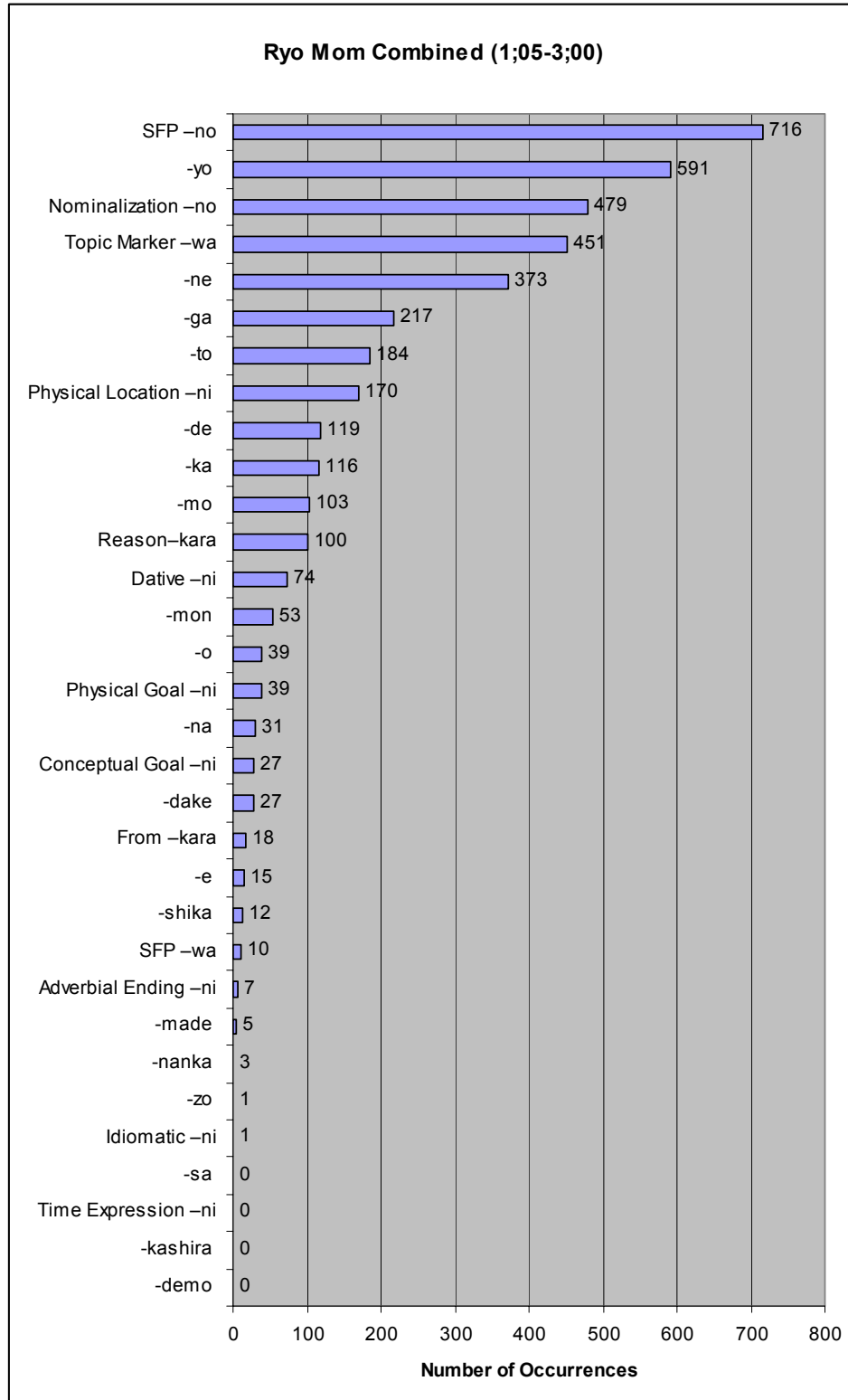


Table 31 Ryo Mom Combined

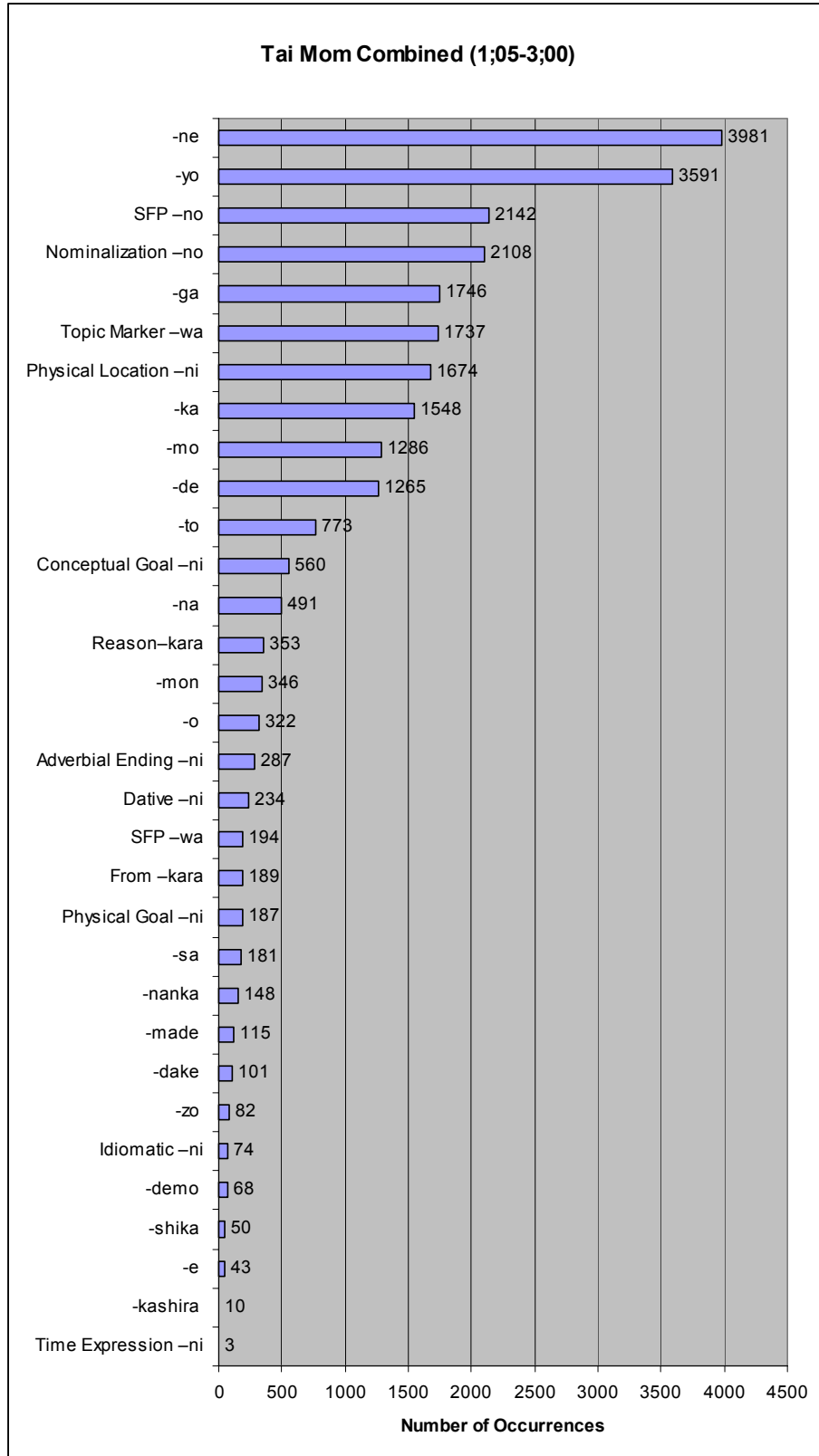


Table 32 Tai Mom Combined

In sum, when mothers talk to their children, there seems to be a uniform pattern of particle usage. Taken individually or as a group, the most uttered particles are the SFPs, *-ne*, *-yo*, and *-no*, and nominalization *-no*. These are followed by *-ga* and *-wa*, and various mono-syllabic particles that mark different NP functions. The lesser uttered particles are semantically complex bi-syllabic particles such as *-shika*, *-bakari*, *-sae*, *-koso*, and *-nado*. These characteristics are similar to those found in the CHJ adult speech. On the other hand, there are some differences between CHJ adults and the mothers, but the reasons are not so surprising. First, the mothers have three extra child/female SFPs, namely *-mon*, *-kashira*, and *-zo*, but because the adult speakers of JCHAT are almost entirely women who are playing with their children, this is not a surprise. Second, time expression *-ni* is almost never used by the mothers but it would be difficult to imagine a situation where mothers need to discuss time or dates with children who are so young.

4.3. JCHAT children's data

4.3.1. The corpora

In order to analyze children's particles use, children's utterances from the Aki corpus (Miyata 2004a), Ryo corpus (Miyata 2004b), and Tai corpus (Miyata 2004c) from the JCHAT project are analyzed. To the best of my knowledge, no one has used these corpora to study the acquisition of particles except for studies focused on a specific particle or on SFPs. For example, Matsuoka (1998, 2001) used the Aki corpus as part of her study of the acquisition of the dative case-marker *-ni* while the acquisition of SFPs, -

ne and *-yo* is the topic of Shirai, Shirai, and Furuta (1999). Most existing particle acquisition studies focus only on the case markers, *-ga*, *-o*, and *-ni*.

4.3.2. The acquisition sequence based on chronological age

Since these three children are at the initial stage of L1 acquisition, rather than looking at the sum of particle usage as with adults, longitudinal usage has to be captured for children. Table 33 shows the acquisition sequence of all particles for all three children. When the acquisition sequences of particles of Aki, Ryo and Tai are examined based on their age, it shows that Tai in particular acquired various particles significantly earlier than the other two children. That is, the particles *-ni*, *-wa*, *-ka*, *yo*, *-e*, *-mo*, *-to*, *-no*, *-ga*, *-ne*, *-na*, and *-de*, are present in Tai's utterances at age 1;05. On the other hand, Aki and Ryo do not start using any particles until a few months later (Aki at age 1;11 and Ryo at age 1;09).

	Aki	Ryo	Tai
1;05			ni, wa, ka, yo, e, mo, to, no (1;05.20) ga, ne, na, de (1;5.27)
1;06			mon
1;07			
1;08			kara
1;09		mo	
1;10		ne	o
1;11	ne , to	ga, ni (1;11.18)	made, dake
2;00	yo (2;0.05) mo (2;0.12) ga, no (2;0.19)	yo, no (2;0.08)	
2;01	wa	wa, de	shika, demo
2;02	ka, na	mon, ka, kara	zo
2;03		o, to, na	
2;04	ni, de, kara, made, mon		
2;05	o	dake	
2;06	dake, e, shika	shika	
2;07		e, made	
2;08	zo		
2;09			
2;10			
2;11			
3;00			

Table 33 Three Children's Chronological Order of Particle Emergence

But, observing the acquisition sequence based on chronological age has its limitations, because it gives us only a one-dimensional view, i.e., it only displays the fact that Tai is an earlier talker than two other children. It does not show the connection between a child's linguistic productivity and the timing of the various particles' emergence. In order to reflect the link between child's productivity and the acquisition sequence, I will use a standard based on the Mean Length of Utterance (MLU). I will calculate the MLU of each child in each month then reformat Table 33 using MLU as a scale.

4.3.3. Issues in analyzing MLU in a Japanese corpora

The Mean Length of Utterance (MLU) is conventionally used to ascertain the measurement of linguistic productivity of children whose native language is English. Traditionally, MLU is calculated by collecting a sample of 100 utterances from a child's data, counting the number of morphemes in each utterance, adding the number of morphemes for all 100 utterances, then dividing by 100.

In the discussion of assigning MLU stages in Japanese, Miyata (2000) indicates that figuring out how to standardize MLU measurement in Japanese is still an area of ongoing research. Since the unit which is used to measure an English speaking child's utterance, i.e. a morpheme, is not straightforwardly transferable to Japanese. Thus, I will discuss various issues pertaining to MLU using Japanese corpora.

4.3.3.1. *MLU (w)*

A method to measure (usually adult's) MLU is to use words as the basic unit ($MLU_{(w)}$). Although calculating $MLU_{(w)}$ in an English corpus is a simple process since space is provided to show the word boundaries, this is not the case in Japanese. In Japanese, there is no space between words as shown in (14).

(14) Written in Japanese orthography

桜の花が咲いた。

Cherry of blossom NOM bloom past.
"The cherry blossom bloomed."

In addition, when Japanese orthography is Romanized, spaces are typically provided to show a boundary, as in (15) for example. However, these spaces do not necessarily indicate word boundaries, rather they indicate "bunsetsu." Minami (1995)

defines a bunsetsu as “a short section within a sentence which does not disrupt meaning unit or pronunciation” (p.39). That is, a bunsetsu is not necessarily a syntactic unit. For example, the following sentence (15) is a romanized version of (14) according to Japanese School Grammar.

(15) Example (14) romanized

Sakurano hanaga saita.
cherry of blossom NOM bloom past.
“The cherry blossom bloomed.”

As shown above in (15), the first Bunsetsu contains the noun “sakura” and the particle -*no*, the second contains the noun “hana” and the nominative marker -*ga*, and the third contains the verb “sai” and the past tense morpheme “ta.” However, since there is no standardized manual to define correct bunsetsu divisions, an individual or different organization can indicate bunsetsu depending on their preference and purpose. For example, the sentence is split into five bunsetsu in JCHAT format as in (16).

(16) JCHAT

Sakura no hana ga saita.
(Minami 1995, p. 40)

4.3.3.2. MLU (m)

Another way to measure MLU is to use morphemes (MLU_(m)). However, the ambiguous nature of the Japanese morpheme poses a problem. For instance, whether to count various verbal inflections, such as the imperative connective *te* in (17) or the ‘*n* plus copula’ in (18) as morphemes (or possibly as more than one morpheme) becomes an issue.

(17) Inu-ga hoe te iru.
dog -NOM bark connective progressive
"A dog is barking."

(18) Inu-ga hoe te iru n desu.
dog -NOM bark connective progressive n+copula
"(Let me tell you [being more friendly]) a dog is barking."

By definition, a morpheme is a minimal meaningful language unit (Payne 1997). The expression "ta" in the previous example (17) is a morpheme that clearly possesses the meaning of past tense. In contrast, the actual meaning of *te* and *n* in front of the copula in examples (17) and (18) is not so clear. The *te* ending of the verb has the function of connecting one predicate to another to form a complex verbal expression; *n* plus copula verb adds an inviting and friendly nuance to the sentence.

As we have seen, in addition to its two syllabic writing systems, Japanese uses Chinese characters which are an ideographic writing system. It is possible that one Chinese character should be considered to be one morpheme since, by definition, an ideographic symbol represents an idea. In example (19) below, although "今日" is one word that means "today," it can be considered to be two morphemes when one defines a Chinese character as a meaningful unit, i.e., "今" represents the meaning of "now" and "日" presents "day"⁵⁷.

(19) 今日
kyou
'today'

⁵⁷Although it is rather clear that two Chinese characters "今" and "日" contribute to the meaning of the word "今日" in example (20), the situation is complicated by the fact that it is not always so transparent that the word is composed of the meanings of its constituent characters. For example, it is not straightforward that the combination of the two Chinese characters "勉" which represents the meaning "to work" and "強" which represents "strong" forms one word "勉強" that means "study".

Since children under six years of age do not usually learn to read or write Chinese characters, whether preschoolers understand one character as a morpheme when they hear or say the sound remains a question to be answered.

Considerations about the correct definition of a morpheme in Japanese aside, the goal here is to standardize the method of MLU calculation under exactly the same definitions and method to compare two corpora, CHJ and JCHAT, which have been established by two different organizations with different purposes, goals, orthographies, and word boundaries. For this reason, frequently recommended morphological analyzers, such as CLAN which is specifically design to analyze morphemes of CHILDES and JMOR which analyzes only JCHAT, could not be used for my study to calculate MLU. In order to account for MLU issues in Japanese, I will define what I consider to be a morpheme. Using that definition, I will then calculate MLU for CHJ and JCHAT.

4.3.3.3. Methodology of MLU (m) in my study

I take all utterances that a person (most importantly a child) contributes or attempts to contribute to communicate into consideration, since the purpose of my study is to analyze how children learn “how to speak.” For example, the “fillers” in English, such as “um,” “well,” and “oh” are not usually not counted as morphemes, but I did count utterances that resemble “fillers” in my MLU. Although some of these utterances, such as those found below for example, may look similar to so-called English “fillers,” we

cannot be sure whether they are actually a part of infant's intended word or not. Figure 5 below shows Aki's earliest twenty verbal activities at age 1;06⁵⁸.

```
{Aki1-06
1      *CHI: (k)ore
3      *CHI: &n
5      *CHI: &WA:
6      *CHI: &n
7      *CHI: &e
8      *CHI: &n
9      *CHI: &n
10     *CHI: &n
11     *CHI: &e
12     *CHI: a
13     *CHI: &an
14     *CHI: &n
17     *CHI: &e
19     *CHI: &n
20     *CHI: a
24     *CHI: &n
25     *CHI: &n
26     *CHI: &n
27     *CHI: a
30     *CHI: &n
```

Figure 5 Aki's Earliest Verbal Activity

In order to count morphemes manually, my judgment on what is and what is not a morpheme is based on the guidelines in the coding manual of the morphological analyzer JMOR (reproduced in Appendix A) in conjunction with my own specification for morphemes as described below in Table 34.

⁵⁸ The "&" sign in front of an utterance indicates "hesitation or incomplete word by mispronunciation" (Oshima-Takane and MacWhinney (1998), p.128)

Items considered as Morphemes in my study	Example
Communicator	Extragrammatical words used to grab attention in a verbal interaction, but usually devoid of meaning or of a syntactic role in a sentence (MacWhinney, 1995).
All particles	SFPs such as -ne and -yo Case markers, such as -ga and -o
One Kanji character	今, 日
Onomatopoeias	Pika (description for “sparkles”)
Exact repetition of the preceding utterance	Un, Un, (yes, yes)
Ambiguous morphemes	Connector <i>te</i> and <i>n</i> in front of copula verb
Inflectional ending in general	Past tense <i>-ta/da</i> , polite form ending <i>masu/desu</i>

Table 34 Morphemes Specification

Miyata (2005) published MLU (m) of the three children, Aki, Ryo, and Tai, but I did not use Miyata’s MLU result since she used JMOR which excluded from the analysis the communicator, lines containing songs and counting, exact repetition of the preceding utterance, incomplete utterances, and onomatopoeias. Since the CallHome (CHJ) corpus contains those items and lines mentioned above as a part of the natural spontaneous conversation and since JCHAT and CHJ must be treated and compared identically in my study, I included the exclusions of Miyata (2005). As a consequence, my MLU (m) and the MLU (m) of Miyata (2005) are not the same although both studies analyzed the same corpus.

4.3.3.4. MLU Result

The MLU (m) are obtained from three randomly chosen sections of 120⁵⁹ continuous utterances in the Callhome Japanese corpus (CHJ), 120 continuous utterances of each child⁶⁰ and 120 continuous utterances of each mother's monthly files in JCHAT.

The MLU (m) of CHJ varies from 6.14 to 9.45, averaging 7.39 as illustrated in the Chart 3 below.

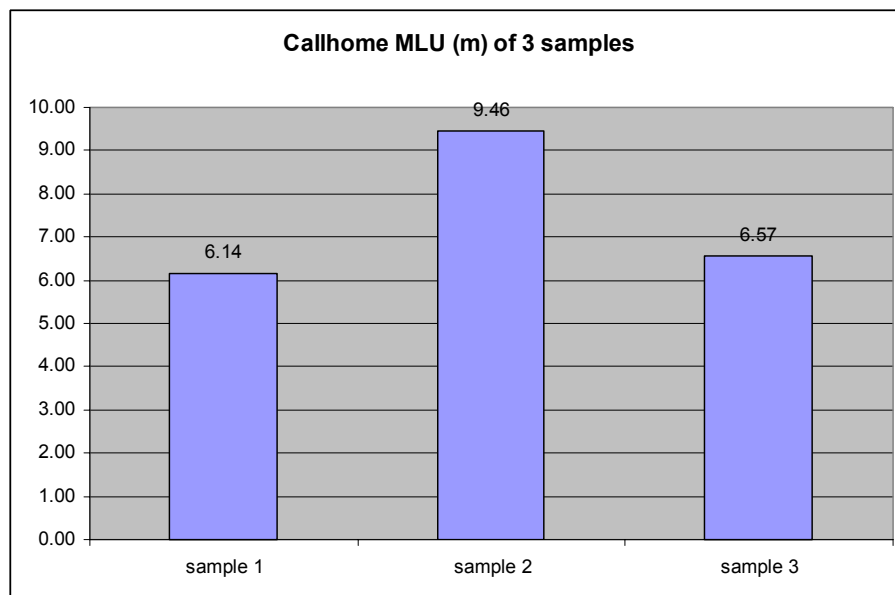


Chart 3 CHJ MLU (m) Samples

Chart 4 displays the MLU (m) of the three mothers in JCHAT from children's age 1;05 to 3;00. Although the MLU (m) of the three mothers fluctuates between 2.16 to 4.97, the MLU (m) of all three mothers is reasonably consistent. For example, the

⁵⁹ Miyata (2005) published the MLU (m) of the three children, Aki, Ryo, and Tai, based on counts from 100 and 150 utterances and demonstrated that the MLU attained from 150 utterances provides a closer estimate of MLU than the MLU with 100 utterances because it has a better chance of accounting for randomly occurring long utterances.

⁶⁰ Two of Aki's and one of Ryo's early MLU counts are based on less than 120 utterances since the data from those months have less than 120 utterances. Aki's 1;05 file contains 59 utterances, Aki's 1;06 file contains 94 utterances, and Ryo's 1;05 file contains 95 utterances.

average MLU (m) of the three mothers at 1;05 is 3.41, at 3;00 is 3.75, and the combined average of all three mother is 3.48.

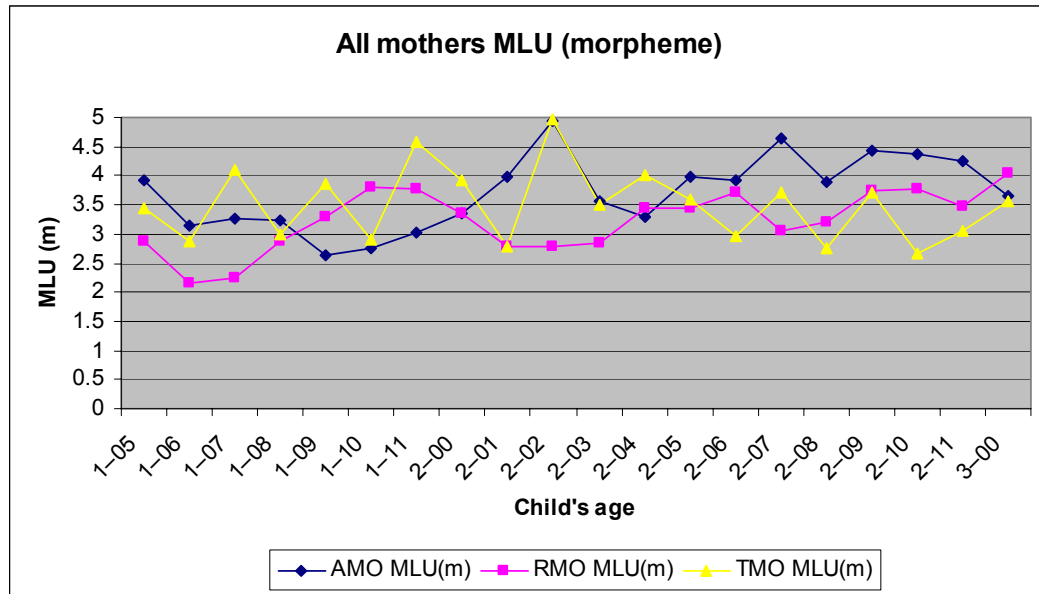


Chart 4 All Mothers MLU (m)

On the other hand, the MLU (m) of the three children in Chart 5 shows a steady increase of MLU from 1;05 to 3;00. For instance, the average MLU (m) of these children in 1;05 is 1.33 and the average in 3;00 is 3.35.

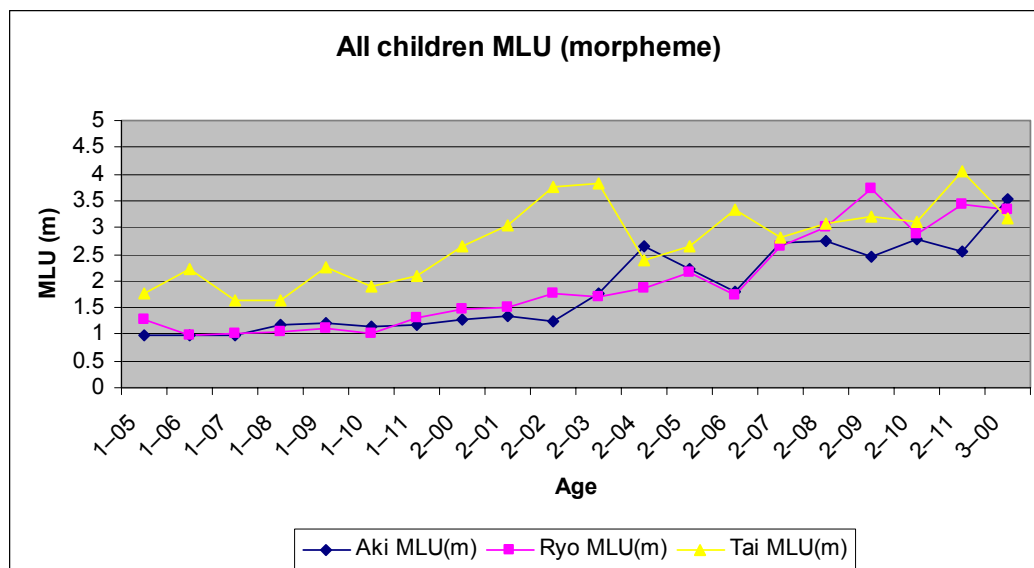


Chart 5 All Children MLU (m)

4.3.3.5. Discussion of the MLU

The MLU (m) of the Callhome and three mother and child dyads are calculated. A comparison of the Callhome and JCHAT adult data reveals two types of adult conversation. Based on the MLU (m) of the Callhome corpus, when adults talk casually on the telephone, the MLU (m) averages 7.39 whereas when adults talk to their children, the MLU (m) averages 3.48. Additionally, there is no trend of steady increase of the mothers' MLU (m) as their children grow older. On the other hand, the MLU (m) of the three children increases steadily as they get older. Further, the MLU (m) of the children reveals a noticeable gap between Aki and Tai. Aki's MLU (m) is 0.97 at 1;05 while Tai's is 1.76 at the same age, as shown in Table 35. Nevertheless, by the time all three children reach age 3;00, their individual MLU (m) have become very similar.

	Aki MLU(m)	Ryo MLU(m)	Tai MLU(m)
1;05	0.97	1.27	1.76
1;06	0.98	0.97	2.22
1;07	0.99	1.02	1.65
1;08	1.19	1.03	1.63
1;09	1.20	1.11	2.26
1;10	1.16	1.00	1.90
1;11	1.19	1.30	2.09
2;00	1.26	1.48	2.63
2;01	1.33	1.50	3.03
2;02	1.23	1.76	3.76
2;03	1.76	1.70	3.82
2;04	2.66	1.85	2.39
2;05	2.21	2.17	2.64
2;06	1.80	1.74	3.34
2;07	2.71	2.65	2.82
2;08	2.74	2.99	3.07
2;09	2.46	3.72	3.19
2;10	2.77	2.88	3.09
2;11	2.55	3.45	4.06
3;00	3.54	3.35	3.15

Table 35 Three Children's MLU (m) Growth

Interestingly, when the children and mothers' data is compared, their respective MLU (m) have become very close (average of children 3.35 vs. average of mothers 3.75) at the age 3;00. Does this result indicate that the utterances of adults and children at age 3.00 are similar when they converse? In order to answer to this question, I also counted phonological mean length of utterance using mora.

4.3.3.6. Counting MLU using mora

The mora is the timing unit in Japanese, i.e., when a word contains two morae, the sound is twice as long as a word containing one mora. The following Table 36 is a list of elements that consist of one mora.

One mora		Hiragana	Romanization
/V/	A single vowel	<i>a</i> in <i>aki</i>	あき 'autumn'
/CV/	Combination of a consonant and a vowel	<i>ki</i> in <i>aki</i>	あき 'autumn'
/CYV/	Combination of a consonant, semivowel, and a vowel	<i>kyo</i> in <i>kyou</i>	きょう 'today'
/n or m/	Consonant [n] or [m] at the end of the syllable	<i>n</i> in <i>san</i>	さん 'three'
/Q/	Choked sound (Romanized as double consonant)	<i>pp</i> in <i>kippu</i>	きっぷ 'ticket'

Table 36 Japanese Mora

For example, the following sentence (21) can be separated into sixteen morae as in (22), or into eleven morphemes under my specification as in (23).

(20) 新幹線に乗って九州に行った。
 Shinkansen-ni notte kyuushuu-ni itta.
 Bullet train on ride Kyuushuu to go past
 "(I) went to Kyuushuu on a bullet train."

(21) Mora count
 Shi-n-ka-n-se-n-ni-no-tte-kyu-u-shu-u-ni-i-tta.
 (16 morae)

(22) Morpheme count
 Shin-kan-sen-ni no-tte-kyuu-shuu-ni i-tta.
 (11 morphemes)

That is, MLU counted in morphemes shows the syntactic length while MLU counted in morae indicates the phonological length of a sentence. From now on, I will use MLU (m), for the MLU in morpheme, and MLU (mora), for the MLU in morea, to distinguish the two. I counted 120 continuous sentences from four different files, 1;05, 2;00, 2;06, and 3;00, of the mothers and children to measure MLU (mora). The following Chart 6 and Chart 7 show the MLU (mora) of mothers and children.

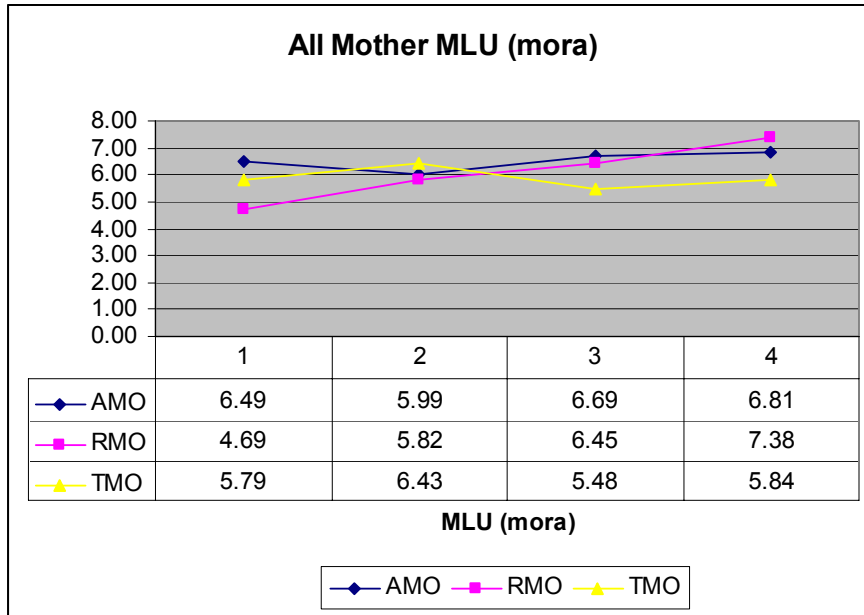


Chart 6 All Mother MLU (mora)

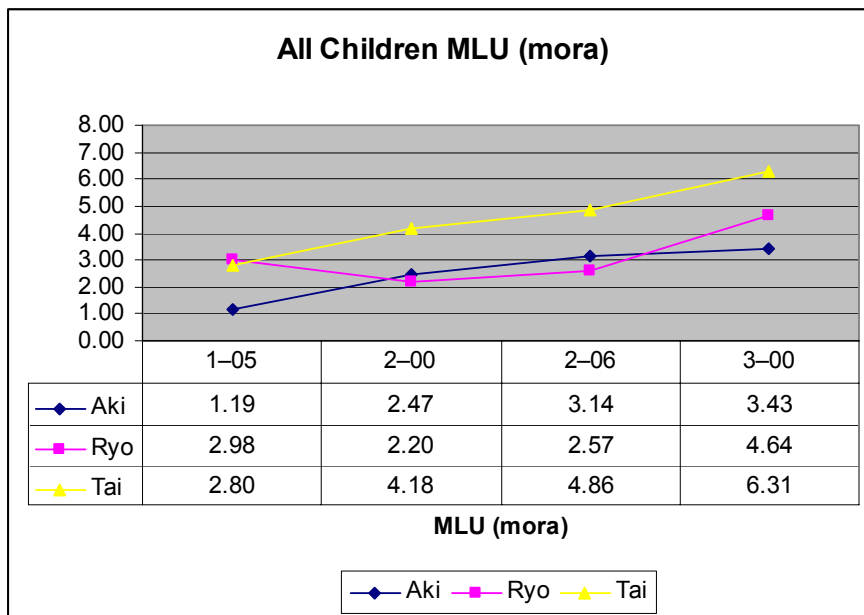


Chart 7 All Children MLU (mora)

The results indicate a different pattern of MLU (mora) between the mothers and the children. Similar to the finding from tracking the MLU (m), the three mothers' MLU (mora) is fairly consistent, while the MLU (mora) of the three children shows a constant increase. Yet when comparing the differences between MLU (m) and MLU (mora), we

find that the MLU (mora) of the two children, Aki and Ryo, at age 3;00 is significantly lower than that of the adults, i.e., Aki's MLU (mora) = 3.43 and Ryo's MLU (mora) = 4.64 while the MLU (mora) of Aki's mother = 6.89 and the MLU (mora) of Ryo's mother = 7.38. This result indicates that Aki and Ryo and their mothers have similar morphemic length, yet the length of the words that the two children use is shorter than their mothers'. On the other hand, Tai's MLU (mora), 6.31, is longer than MLU (mora) of his mother, 5.84. I believe that this is a consequence of the corpus sample which was chosen from a segment where Tai's mother is predominantly being a listener to her child.

Lastly, the MLU (mora) of three random sections of 120 continuous utterances of the CHJ corpus shows that the average MLU (mora) used in an adult telephone conversation is 10.95 which is 4.24 mora longer than the average of the three mothers MLU (mora) used when speaking to their children at 3;00 years of age.

4.3.3.7. A second look at the Acquisition sequence of particles based on MLU (m)

Now let us look at the acquisition sequence of the three children using MLU (m). In order to see the development of MLU (m) clearly, five stages of MLU (m) are defined. Those columns are divided into five stages⁶¹: stage I (MLU (m) 1.00-1.49), stage II (MLU (m) 1.50-1.99), stage III (MLU (m) 2.00-2.49), stage IV (MLU (m) 2.50 to 2.99), and stage V (MLU (m) 3.00 and above) according to the MLU (m) as illustrated below in Table 37.

⁶¹ These stages are only applicable to my dissertation. They do not correspond to nor are they related to other researchers' stages, such as those found in Miyata (2000) and Brown (1973).

MLU (m) Stages	MLU (m)	General description of utterances
MLU stage I	1.00-1.49	Early two word/morpheme stage (one word/morpheme utterances are more common than more than two word/morpheme utterances)
MLU stage II	1.50-1.99	Late two word/morpheme stage (two word/morpheme utterances are more frequent; the transitional state to three word/morpheme utterances)
MLU stage III	2.00-2.49	Early multi-word/morpheme stage (two word/morpheme utterances are more common and some utterances contain multi-word/morphemes)
MLU stage IV	2.50-2.99	Late multi-word/morpheme stage (many utterances contain multi-word/morpheme utterances)
MLU stage V	3.00+	Three word/morpheme state (many utterances contain full predicates; syntactic complexity increases in the utterances)

Table 37 MLU (m) Stages

When the acquisition sequences of the particles of Aki, Ryo and Tai are examined based on their age in section 4.3.2, it appeared that Tai in particular acquired various particles significantly earlier than the other two children. However, the MLU (m) based acquisition sequence unveils additional information. Table 38 MLU (m) Based Particle Emergence Order displays the MLU (m) based acquisition sequence of the three children. The three large columns display Aki, Ryo, and Tai's MLU (m). Their corresponding chronological ages appear in the parentheses next to the MLU (m), while the particles that emerged at that age are listed in the column to the right. The five MLU (m) stages are distinguished by different shading⁶². Finally, the three columns are

⁶² Although the children's MLU (m) fluctuate, when one child reach to a higher MLU (m) stage, they will remain in the same stage until reaching to the next.

aligned with MLU (m) stage of 1.49-2.00 where Tai's data first begins. Specific types of ambiguous particles are denoted in the parentheses on the right: (nom) indicates nominalization, (loc) indicates physical location, and so on. For example, the very first cell in the left column of Table 38⁶³ shows that when Aki is at the age of 1;05, his MLU(m) is 1.00. When he reaches the age of 1;11, his MLU(m) has increased to 1.19, and the particles *-ne* and *-to* emerge in his speech. When his MLU (m) increases to 1.26 at the age of 2;00, *-mo*, *-ga*, nominalization *-no*, and *-yo* emerge.

⁶³ Abbreviations used for Table 38 are the following: nom=nominalization, loc=physical location, goal=physical goal, adv=adverbial ending, dat=dative, idio=idiomatic expression, con.goal=conceptual goal

Aki MLU(m)

1.00 (1;05)	
1.00 (1;06)	
1.00 (1;07)	
1.19 (1;08)	
1.20 (1;09)	
1.16 (1;10)	
1.19 (1;11)	ne, to
1.26 (2;00)	yo mo ga, no (nom)
1.33 (2;01)	wa
1.23 (2;02)	ka, na, no (SFP)
1.76 (2;03)	
2.66 (2;04)	ni (loc), ni (goal), ni (idio), de, kara (from), made, mon, wa (SFP)
2.21 (2;05)	o
1.80 (2;06)	e, shika, dake
2.71 (2;07)	kara (reason), ni (adv), ni (dat)
2.74 (2;08)	zo, sa
2.46 (2;09)	ni (con. goal)
2.77 (2;10)	
2.55 (2;11)	
3.54 (3;00)	

Ryo MLU(m)

1.27 (1;05)	
1.00 (1;06)	
1.02 (1;07)	
1.03 (1;08)	
1.11 (1;09)	mo
1.00 (1;10)	
1.30 (1;11)	ga, ni (loc)
1.48 (2;00)	yo, no (nom)
1.50 (2;01)	wa, de, ni (goal), no (SFP)
1.76 (2;02)	mon, ka, kara (from), ni (dat)
1.70 (2;03)	o, to, na, kara (reason), wa (SFP)
1.85 (2;04)	
2.17 (2;05)	dake
1.74 (2;06)	shika
2.65 (2;07)	e, made
2.99 (2;08)	
3.72 (2;09)	
2.88 (2;10)	
4.45 (2;11)	

Tai MLU(m)

1.76 (1;05)	ni (loc), wa, ka, yo, e, mo, to, no (nom) ga, ne, na, de, no(SFP)
2.22 (1;06)	mon
1.65 (1;07)	
1.63 (1;08)	kara (from)
2.26 (1;09)	
1.90 (1;10)	o, ni (goal)
2.09 (1;11)	made, dake, sa (SFP)
2.63 (2;00)	kara (reason), ni (adv)
3.03 (2;01)	shika, demo, ni (dat)
3.76 (2;02)	zo
3.82 (2;03)	

MLU (m)	MLU (m) Stages
1.00-1.49	I
1.50-1.99	II
2.00-2.49	III
2.50-2.99	IV
3.00+	V

Table 38 MLU (m) Based Particle Emergence Order

There are two striking facts about the results. First, Tai's earliest data begins with significantly higher linguistic productivity. At age 1;05, Tai's MLU (m) is 1.76, whereas Aki's is 1.00 and Ryo's is 1.27. At this particular age, neither Aki nor Ryo have any particles in their utterances, yet Tai's utterances contain twelve different particles.

Second, although the individual children display different thresholds for particle acquisition, by the time they reach to around an MLU (m) of 3;00 (specifically MLU (m) 2.24 for Aki, 2.65 for Ryo, and 3.03 for Tai⁶⁴), all three children have completed their acquisition of the basic particles.

Lastly, since Tai starts out with a high MLU (m) without the MLU (m) stage I, I can only use Aki and Ryo's data for analyzing the earliest MLU (m) stage. Nevertheless, it seems logical to speculate (even though I do not have the data to support this) that Tai's particle acquisition sequence would have exhibited a pattern similar to Aki and Ryo if Tai's pre-1;05 data was available. The MLU (m) scale also offers an explanation for why Tai has control of more particles so early in his life. Table 38 shows that by the end of MLU (m) stage II, all three children acquire ten to eighteen particles, i.e., Aki and Ryo are not simply slow starters in the chronological sense, but rather, they have a longer period of low linguistically productivity before they reach the MLU (m) stage II.

In the next section, I discuss the acquisition sequence of the different types of particles.

⁶⁴ Tai acquired the particle *-zo* at MLU (m) 3.76, but *-zo* should not be considered to be a basic particle since *-zo* is not present for all Japanese speakers, i.e., it is usually used by males –but not necessarily by all males (since it is always optional). As a matter of fact, Ryo did not use *-zo* at all in the data.

4.4. Acquisition sequence

4.4.1. Sentence final particles

In general, SFPs are the first type of particle to appear in all of the children's speech. Especially, *-ne* (expecting agreement) and *-yo* (emphatic) are the very first particles acquired by all three children. Table 39 shows the acquisition sequence of Sentence Final Particles with the corresponding MLU (m) stage and chronological age in parentheses.

MLU (m) stages	Aki	Ryo	Tai
MLU stage I	ne (1;11) yo (2;00) no (2;00) ka (2;02)	ne (1;10) yo (2;00)	N/A
MLU stage II		no (2;01) mon (2;02) wa (2;03)	ne (1;05) yo (1;05) ka (1;05) no (1;05)
MLU stage III			mon (1;06) sa (1;11)
MLU stage IV	wa (2;04) mon (2;04) zo (2;08) sa (2;08)		
MLU stage V			zo (2;02)

Table 39 Emergence of Sentence Final Particles

Interestingly, *-ne* and *-yo* are the most frequent SFPs that are used in the adult corpus as well. This result coincides with Shirai, Shirai, and Furuta (1999) investigating

the SFPs *-ne* and *-yo*, and Clancy's (1985) result reporting that children begin to use SFPs in the earliest stage of acquisition. Although asking question seems to be a more important function than giving emphasis, one might speculate that *-ka* ought to appear before *-yo*. However, since questions can be formed with raising intonation as well, it is reasonable to assume that the grammaticalized question marker *-ka* can appear later than *-yo*. And indeed children can ask questions without using *-ka* before it appears. *-ka* (unisex question) appears at around the same time that *-no* (female question) appears, after *-ne* and *-yo*.

Next, the SFPs that are typically associated with different sexes appear: female/child *-mon* (resentment)⁶⁵ appears at the same time for all three, and female *-wa* (emphatic) appears after *-mon* for Aki and Ryo, and male *-sa* (emphatic) and *-zo* (strong emphatic) appears as the last SFP for Aki and Tai, i.e., the SFPs that children acquire later are the variations of emphatic *-yo*.

4.4.2. Case markers

Nominative case markers *-ga* appear after the primary SFPs *-ne*, *-yo*, and *-ka*, emerge⁶⁶. According to Clancy (1985), nominative case marker *-ga* and dative marker *-ni* appears at around the same time at two years of age when two-word utterances becomes very frequent. Clancy's report is accurate, although the result of my

⁶⁵ Sentence final particle *-mon* is only used by children and possibly by young females since it is an apocopation of a phrase "mono-o" that attaches at the end of a sentence to express resentment, complaint, or non-satisfaction, done by children. "mono-o" can be used in the following way:

leba itta mono-o.
 say-if went resentment/complaint
 "If (you) told me, I (could have gone, but you did not let me come to you)."

⁶⁶ Since Tai's earliest data contains the SFPs *-yo*, *-ne*, and the nominative case marker *-ga*, the generalization is made based on observing Aki and Ryo's data.

disambiguation of the particle *-ni* reveals further insight regarding *-ni*. Table 40 illustrates the details; various types of *-ni* are shown with corresponding MLU (m) stage and chronological age in the parentheses.

MLU (m) stage	Aki	Ryo	Tai
MLU stage I		Physical location (1;11)	N/A
MLU stage II		Physical goal (2;01) Dative (2;02)	Physical location (1;05)
MLU stage III	Physical location (2;04) Physical goal (2;04) Idiomatic expressions (2;04) Adverbial ending (2;07) Dative (2;07)		Physical goal (1;09)
MLU stage IV	Conceptual goal (2;09)		
MLU stage V			Dative (2;01) Conceptual goal (2;01) Idiomatic expressions (2;02)

Table 40 Emergence of Various *-ni*

Aki acquires six categories of particle *-ni* by the age of 3;00. He begins to use the *-ni* to mark physical location, physical goal, and idiomatic expressions at age 2;04, the dative case marker and adverbial ending *-ni* at 2;07, and conceptual goal at age 2;09. Ryo acquires three categories of particle *-ni*: physical location *-ni* at age 1;11, physical goal at 2;01, and the dative at 2;02. Tai acquires six categories: physical location at age 1;05, physical goal at 1;09, adverbial ending at 2;00, the dative and conceptual goal at 2;01, and idiomatic expression *-ni* at 2;02.

The analysis of the acquisition sequence of particle *-ni* uncovers two general tendencies: (i) conceptually concrete *-ni* is learned first and abstract *-ni* later, i.e., the particle *-ni* that marks physical/concrete items, such as physical location and goal, is acquired earlier and the *-ni* that marks an abstract idea, such as the dative and or a conceptual goal, later and (ii) syntactically, those *-ni* that simply attach to an NP, such as a physical goal or location, are learned first, and *-ni* to mark the indirect object of a ditransitive verb is learned at a later MLU (m) stage.

Based on the disambiguation of different *-ni*, Table 41 shows the acquisition order of case markers with the corresponding MLU (m) stage and chronological age in the parentheses.

MLU (m) stage	Aki	Ryo	Tai
MLU stage I	ga (2;00)	ga (1;11)	N/A
MLU stage II		ni (2;02) o (2;03)	ga (1;05)
MLU stage III	o (2;05) ni (2;07)		o (1;10)
MLU stage IV			
MLU stage V			ni (2;01)

Table 41 Emergence of Case Markers

All three children acquire nominative marker *-ga* first then Aki and Tai learn accusative marker *-o* and dative marker *-ni*. Ryo learns dative marker *-ni* before accusative *-o* which is last.

4.4.3. Other particles

The following Table 42 shows the acquisition order of the remaining particles.

MLU (m) stage	Aki	Ryo	Tai
MLU stage I	to (1;11) mo (2;00) wa (2;01)	mo(2;09)	N/A
MLU stage II		de (2;01) wa (2;01) to (2;03) kara [from] (2;02) kara [reason] (2;03)	wa (1;05) e (1;05) mo (1;05) no [nom] (1;05) de (1;05)
MLU stage III	de (2;04) kara [from] (2;04) made (2;04)	dake (2;05) shika (2;06)	kara [from] (1;08) made (1;11) dake (1;11)
MLU stage IV	e (2;06) shika (2;06) dake (2;06) kara [reason] (2;07)	e (2;07) made (2;07)	kara [reason] (2;00)
MLU stage V			shika (2;01) demo (2;01) nanka (2;02)

Table 42 Emergence of the Remaining Particles

Particles *-to* (and), *-mo* (also), *-wa* (topic), and *-no* (genitive) emerge early for all children, followed by *-de* (instrumental), *-shika* (only), *-kara* (from), and *-made* (until) which appear later. Only Tai's data had the complex particles *-demo* (even) and *-nanka* (such as) which appear last.

The acquisition sequence of these particles seems to have three general characteristics: (i) phonologically, mono-syllabic particles are learned earlier, (ii) syntactically, the mono-syllabic particles that appears early (*-to*, *-mo*, and *-no*) at MLU (m) stage I and II are typically the ones that combines two nouns together and late mono-syllabic particles (various non-dative *-ni* from previous section, *-de*, and *-e*) as well

as the ones that attach to NPs to convey the function of the NP within the sentence (similar to English prepositions), and (iii) bi-syllabic syllables particles which are semantically complex are learned latest, between MLU (m) stage III and V. In addition, when it comes to the ambiguous particle *-kara*, the *-kara* attaching to an NP to express the meaning of 'from' is learned first, and the *-kara* attaching to a sentence to describe 'reason' is learned later. This makes sense since whether or not a child knows the two meanings of *-kara*, until he or she is ready to utter a full sentence, the *-kara* used to express reason cannot be accurately used. Also, the learning direction from conceptually concrete to abstract is similar to that of ambiguous *-ni* observed in the previous section.

One remaining question is that the emergence of *-wa* does not fit into the three trends mentioned above. That is, although *-wa* is mono-syllabic and one of the early particles to be learned, it does not connect two nouns, and it is not in any obvious sense like an English preposition. In the final section of this chapter, I begin a discussion of particle *-wa*. This discussion is the main topic of Chapter 5.

4.4.4. Subject marker *-ga* and Topic marker *-wa*

When an English sentence, such as (23), is translated into Japanese, the subject *John* can be marked with topic marker *-wa* as in example (24), although it is also possible to mark the subject with subject marker *-ga* as in (25).

(23) John came!

(24) John-wa kimashita-yo.
John-NOM came -emphatic
"John came!"

- (25) John-ga kimashita-yo.
 John-NOM came -emphatic
 "John came!"

Although *-wa* appears to mark the subject of the sentence in the example above, as is shown in (26), this is not always the case.

- (26) Kyoo-wa John-ga kimashita-yo.
 Today, -top John-NOM came -emphatic
 "Speaking of today, John came!"

At first glance it appears that *-ga* and *-wa* are somehow linked, and as a matter of fact, subject marker *-ga* and topic marker *-wa* appear very closely in the acquisition sequence. Tai already has both *-wa* and *-ga* in his speech by age 1;05, Aki's *-ga* and *-wa* emerge one month apart, and Ryo's emerge two months apart. This is also reported by Miyahara (1974, p.285); as she describes, "Wa and ga appeared first at almost the same time." Table 43 illustrates the timing of *-ga* and *-wa* emergence for all three children.

MLU (m) stage	Aki	Ryo	Tai
MLU stage I	ga (2;00) wa (2;01)	ga (1;11)	N/A
MLU stage II		wa (2;01)	ga (1;05) wa (1;05)

Table 43 Emergence of *-ga* and *-wa*

The acquisition of *-ga* and *-wa* is of interest since these two particles are an extremely important subject of study in Japanese linguistics. Given their significance in the language, it is particularly noteworthy that the acquisition of particle *-wa* seems never to have been studied (in contrast to the case markers *-ga*, *-o*, and *-ni* as well as sentence final particles). The question is therefore raised: why should *-wa* and *-ga* appear so closely in the speech of all three children? We know that *-ga* and *-wa* are not related

syntactically from the examples (24) to (26) above. While *-ga* is the nominative case marker, *-wa* is usually considered to be a topic marker. As such its syntactic function is less clearly understood than the usual markers of case.

4.5. Summary

4.5.1. Adult-to-adult vs. adult-to-children speech

The relative percentages of each particle with respect to all particles that appear in the mothers' utterances is illustrated in Chart 8 while the relative percentages of each particle with respect to all particles that appear in the adult-to-adult interaction of the CHJ corpus is illustrated in Chart 9. The percentages were attained by dividing the total number of particle occurrences by the total number of utterances of each particle, i.e, the percentages give the chance of a particular particle appearing in any single utterance⁶⁷. For example, for a given sentence, there is a 7.54% chance that the child would hear the mother using SFP *-ne*.

In comparison, there are three common attributes in the particle use between the CHJ participants and in the particle use of the three mothers. First, the SFP *-ne* is the most commonly occurring particle in both groups. As shown in Chart 8 and 9, although the CHJ participants use *-ne* more frequently than the mothers (16.3% and 7.5% respectively), I suspect the higher usage is caused by the telephone conversation situation. In addition, the frequency of *-ga* and *-wa* usage is very close for both the CHJ participants and the mothers (*-ga*: 9.6% vs. *-wa*: 9.8% and *-ga*: 3.5% vs. *-wa*: 4.0% respectively). Lastly, bi-syllabic particles such as *-shika*, *-sae*, and *-koso* almost never occur (the frequencies of those particles are all below 0.1%) in adult speech. I believe

⁶⁷ No JCHAT utterances contained embedded sentences.

that these bi-syllabic particles are ordinarily used in formal speech and writing and hence they do not appear in casual speech. (This would help explain why none of the three children has these particles by age 3;00.)

On the other hand, difference between the CHJ participants and the mothers are found with respect to two kinds of particles. Although the second and third most common particles used by the mothers are emphatic *-yo* and *-no*, these two particles are much further down for the CHJ participants. Instead nominalization *-no* is second for the CHJ participants. Also, contrary to the use of various *-ni* by the CHJ participants, time expression, idiomatic, and adverbial *-ni* are either absent or very infrequent in the mothers' speech. I believe that the reason for these differences can be found in the content of the conversations. As expected, adult-to-adult conversation requires longer nouns and complex predicates which involve nominalization *-no* and various *-ni*.

Finally, an analysis of MLU (m) and MLU (mora) reveals that sentences in adult-to-adult conversation are syntactically and phonologically longer than in adult-to-child speech.

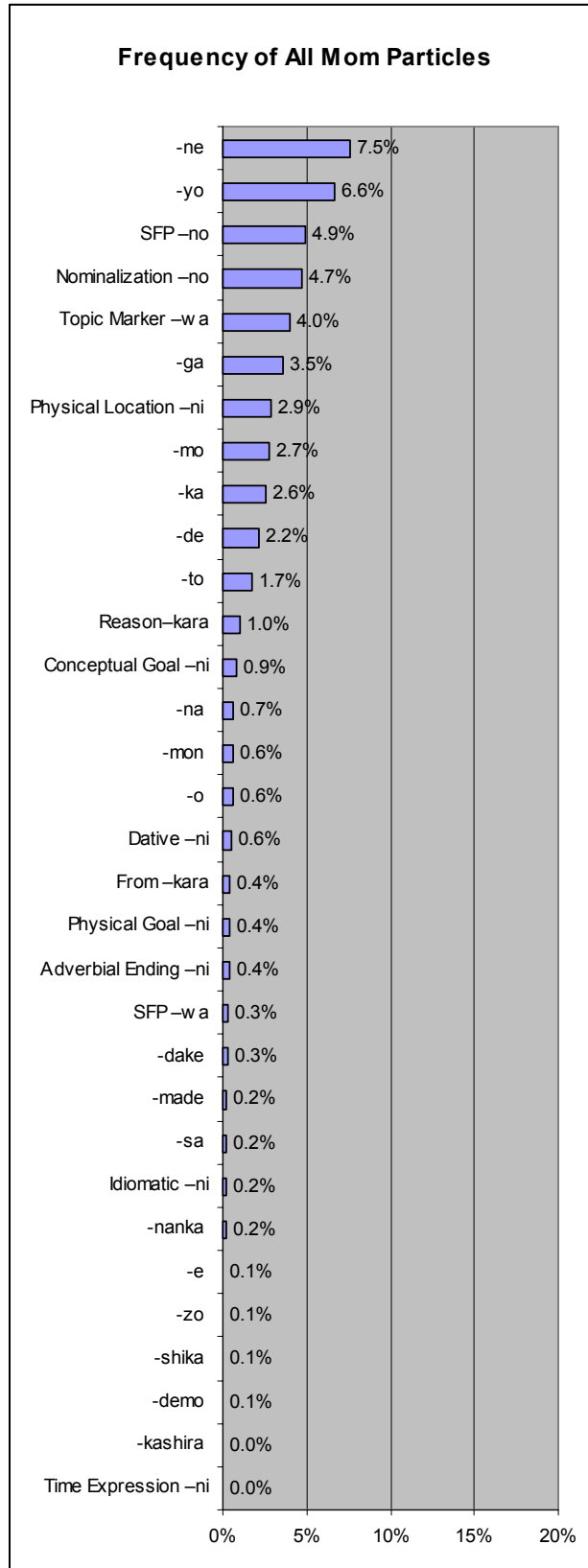


Chart 8 Frequency of All Mom Particles

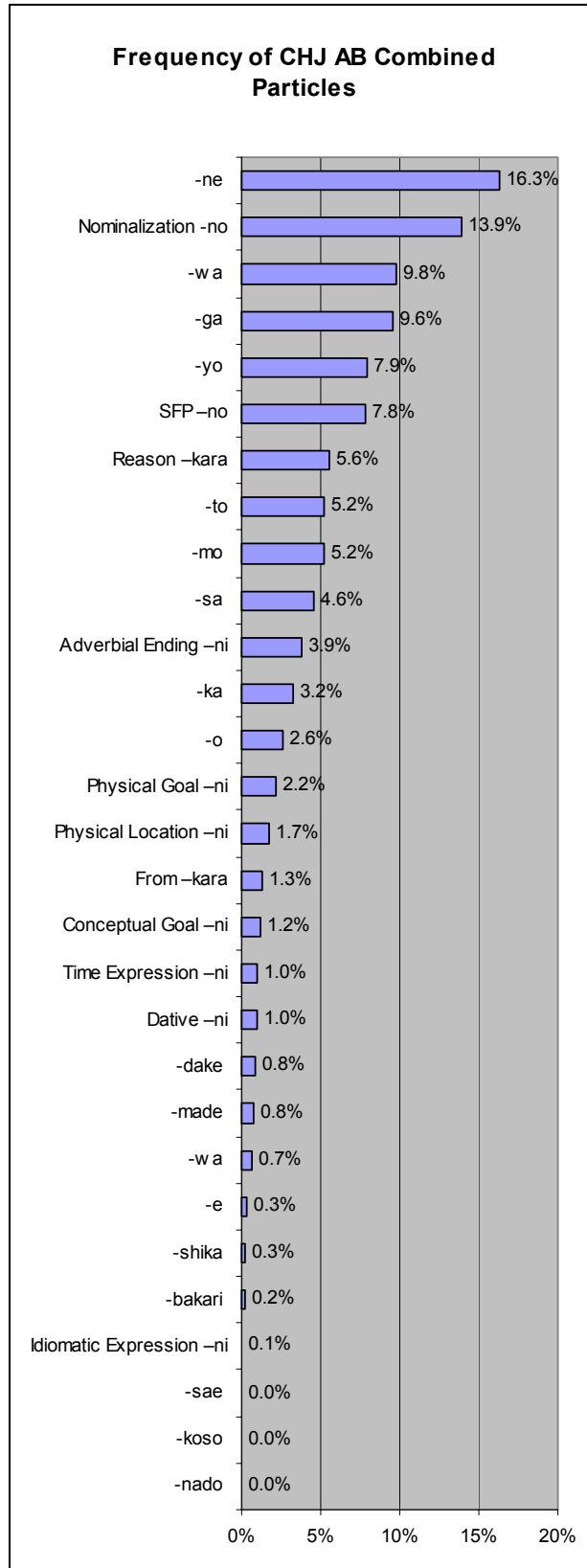


Chart 9 Frequency of CHJ AB Combined Particles

4.5.2. Children's sequence of particle acquisition

The acquisition sequence of particles by children has three general characteristics. First, phonologically, mono-syllabic particles (such as SFPs) are learned earlier. Second, syntactically, the mono-syllabic particles used to combine two nouns (such as *-to* and *-mo*) and as well as the particles (such as case markers and *-de*) that convey the function of NPs appears early in MLU (m) stage I and II. Third, bi-syllabic particles (such as *-made* and *-dake*) which are semantically complex are learned the latest, between MLU (m) stage III and V. Also, the analysis of ambiguous particles reveals that for particles *-kara* and *-ni* children tend to learn conceptually concrete usages first and abstract usages later.

One remaining question is that the emergence of *-wa* does not fit into any of the three generalizations mentioned above. On the other hand, there would seem to be enough evidence to demonstrate that *-ga* and *-wa* are actually a pair of some sort, appearing in children's speech at more or less the same time. If so, we now have a good picture of the L1 particle acquisition sequence. Children learn SFPs first followed by *-ga* and *-wa*. As their MLU becomes longer, they begin to use case markers because the longer MLU coincides with greater syntactic complexity and a greater necessity to mark direct and indirect objects. Simultaneously, they also learn other particles starting with mono-syllabic particles to connect adjunct NPs to the increasingly complex predicates, i.e. the particles that correspond to prepositions in English. Around the time a child's MLU (m) reaches 3.00, their process of particle acquisition is completed and now includes bi-syllabic and semantically complex particles.

In Chapter 5, I will discuss an analysis and a possible explanation for this particular acquisition sequence. I will argue that the initial stage of particle acquisition is motivated by the learning of various illocutionary acts, and by addressing a theory of

speech acts, a possible link between *-ga* and *-wa* is revealed. As syntax and the range of possible expressions increase in complexity, other particles appear to mark different kinds of NPs, i.e. arguments and adjuncts.

Chapter 5: Analysis and Discussions

5.1. Questions raised from Chapter 4

A regular particle acquisition sequence was found among the three children and discussed in Chapter 4. In this chapter, I will first demonstrate that children actually know how to use the newly acquired particles accurately by presenting an analysis of their nearly perfect particle usage. Next, we must address the question of why the acquisition sequence is shared by children who have different input in terms of their parents, family members, and environment. If we assume that children's particle acquisition is strongly affected by their primary input, two questions are raised. Specifically, do children mimic the pattern that the primary input presents to them? If this is the case then there should be a relationship between the child-directed speech used by mothers and the particular particle that a child is learning at a particular time. If this is not the case then we may fairly ask, what motivates children to learn the particles in the way that they do? In order to answer these questions, I analyze the children's data and their mothers' data together.

5.2. Verifying children's particle acquisition

I counted all mistakes in JCHAT (where they are marked with [*]). Overall, the children make a variety of mistakes, although the relative number is small. An average of 2.23% of 73010 utterances contained mistakes (Aki 1.72%, Ryo 2.26%, and Tai 3.28%). The mistakes include grammatical errors (of verb and adjective conjugation in particular) as well as the wrong or a deviated form of a word. The children's percentages are higher than the three mothers' whose average is 0.013% of 94878

utterances (Aki's mother 0.01%, Ryo's mother 0.01%, and Tai's mother 0.02%). As for the mistakes specific to particles, the number is very low.⁶⁸ Chart 10 shows the percentage of utterances that contain particle mistakes⁶⁹ averaged across the data of all three children.

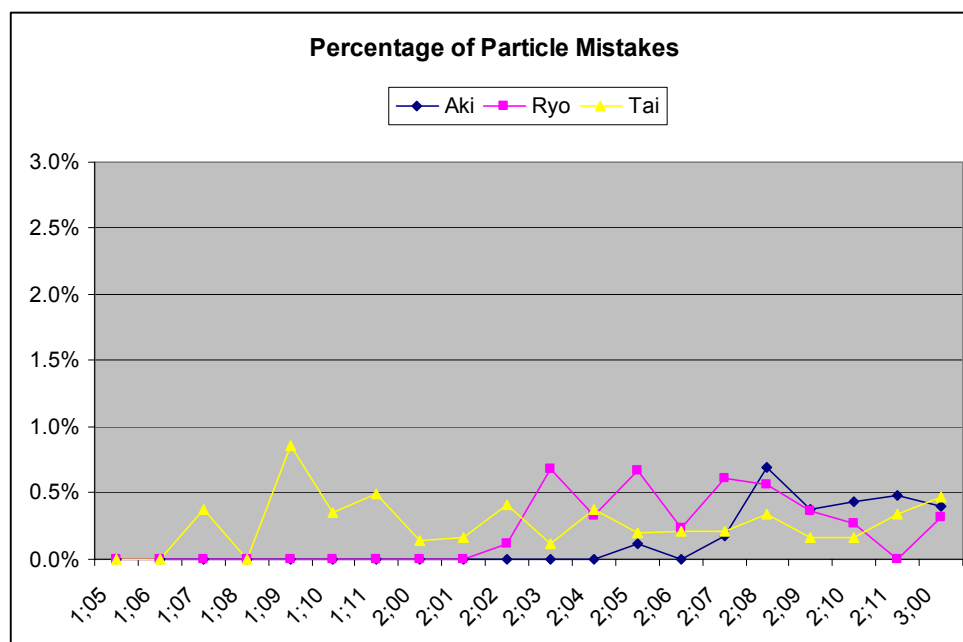


Chart 10 Percentage of Particle Mistakes

The percentage of utterances with particle mistakes for all three children for all the data was below 1%; that is, 99% of the time children used particles accurately. This finding concurs with Clancy's (1986) report that particles emerge without error.

When existing particle mistakes are analyzed, the mistakes can be categorized into four major types: (i) inaccurate particle choice, (ii) violation of grammatical restrictions on the host, (iii) inaccurate or impossible particle stacking order, and (iv) a mistake that is clearly wrong but there is no clear rationale for it. Examples (1) to (6) illustrate mistakes each type.

⁶⁸ Recall that Aki and Ryo do not start using particles until they are 1;11 and 1;09, respectively; as a result there are no errors in the early utterances of these boys.

⁶⁹ There were a small number of mistakes which were marked with [*] but it was not clear why they were so marked. Therefore, I counted only utterances that include a clear particle mistake.

Sentence (1) demonstrates that the child marked a deictic expression ‘*koko*’ ‘here’ with a wrongly chosen particle *-ni*, which can mark a physical location with verbs describing directionality such as “*to go*,” “*to return*,” or “*to enter*”. Since the actual verb used in this sentence is an action verb, the choice of *-ni* to mark location is ungrammatical.

(1) In accurate particle choice

Koko-ni* haku-no? (Tai 2;10)
 here phys. loc wear soft question
 “(Should I) were (this) at here?”

There are some subtypes of the mistakes related to violating grammatical restrictions of the particle host. The violation can be caused by choosing the wrong grammatical category as the host (i.e. choosing a noun instead of An adjective), over-extending a rule from an ambiguous particle, or failing to acknowledge the subcategorization frame of a verb.

The ungrammaticality of sentence (2) is caused by the combination of nominalization *-no* and an inaccurate host form. Since *umai* is an adjective, it does not require *-no* to modify the following noun *keeki*, i.e., the child treated an adjective as though it is a noun. A possible explanation for this is that the child may overgeneralize the usage of nominalization *-no* and use it to connect any two words (when it should only be used to connect any two nouns).

(2) Overgeneralization of *-no*

Umai-no* keeki-ga oishii-yo koko. (Tai 1;11)
 delicious nominalizing cake -nom delicious emph here
 “Good cake is delicious here!”

Sentence (3) shows another example of this type of mistake. In (3), since the particle *-kara* is attached to a noun, *kanichipp*, instead of to an correct host (in this case, a complete sentence), the result is ungrammaticality. The child may have mistakenly

assumed that *-kara* expressing reason can attach to a noun just like the *-kara* which is used to indicate a locative origin.

- (3) Over extending the rule from an ambiguous particle learned earlier

Kanichippu-kara*. (Tai 2;08)
crab-chips reason
“(Since they are) crab-chips”

Another type of mistake is shown in (4). In Japanese, there are two lexical items meaning ‘to exist’; *iru* is used to describe the existence of a person or other animate being while *aru* is used for inanimate objects. In this context, choosing animate *iru* is ungrammatical although structurally the sentence is otherwise fine.

- (4) Failing to acknowledge subcategorization frame of a verb

Bokujoo-ga* iru. (Tai 2;08)
ranch -nom exist
“There is a ranch”

Example (5) shows an error of stacking order. The two particles, *-yo* and *-kara*, that appear at the end are stacked in the wrong order resulting ungrammaticality. Such errors typically appear in the later stages of the data for all three children.

- (5) Wrong stacking order

Taishookun-ne kore yaru-yo-kara*. (Tai 2;11)
Taishoo diminutive -confirmation this give-emph -since
“Since Taisho (is going to) give this to (you), ok?!”

The last type of mistake is one where the reason for the ungrammaticality is not clear. For example (6) contains two particle *-no*, but *-no* is ambiguous and from the transcription, it is not possible to determine whether the child intended to use the nominalization *-no* and SFP *-no* or simple stuttered *-no* twice.

- (6) Not clear

Moo ikko-no-no*. (Tai 1;11)
More one ? ?
“? One more...”

Chart 11⁷⁰ shows the percentages of mistakes among all the utterance containing particles.

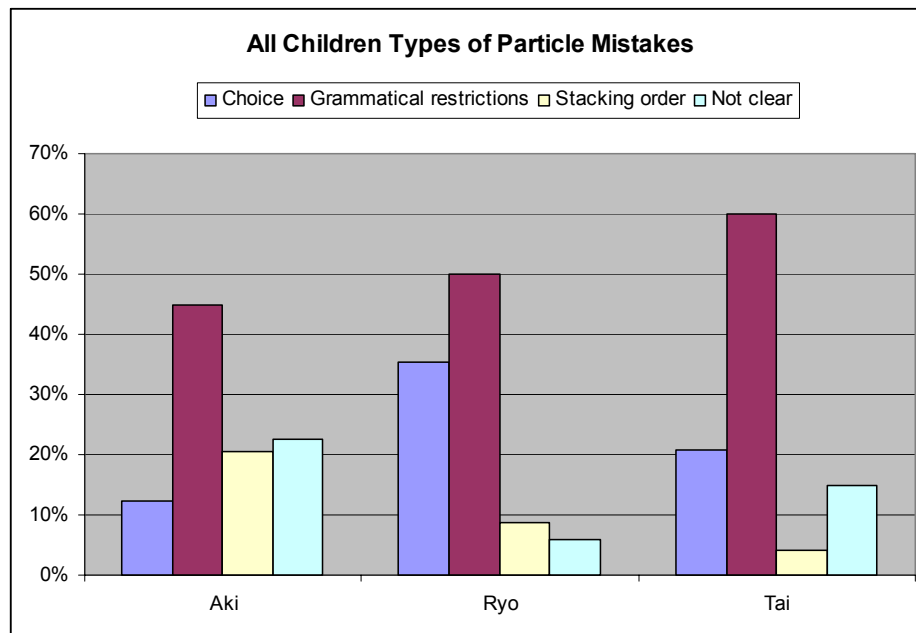


Chart 11 All Children: Types of Particle Mistakes

Chart 11 shows that the majority of particle mistakes are associated with violations of the grammatical restrictions of the particle host. The frequencies of the other types of mistakes vary from one child to the next. In sum, by examining particle mistakes we discover that the number of mistakes is very small; below 1% of the total number of utterances. It therefore seems reasonable to conclude that the children know how to use particles correctly.

Typically, an omission of an obligatorily overt element is an indication of ungrammaticality. This is a difficult standard to apply to Japanese since when it comes to particles very little if anything is necessarily overt. That is, like the various types of

⁷⁰ The following gives the underlying numerical detail of Chart 11.

	Aki	Ryo	Tai
Choice	12.2%	35.3%	20.8%
Grammatical restrictions	44.9%	50.0%	60.0%
Stacking order	20.4%	8.8%	4.2%
Not clear	22.4%	5.9%	15.0%

ellipsis discussed in earlier sections (see the section 1.1.4 for copula verbs, 1.1.5 for *i-* and *na-* adjectives, and 3.1.1. for Case Marker Drop), the omission of particles is also a convention used in grammatical colloquial Japanese speech. Therefore, the errors that counted here were not errors of omission, but were all errors of commission. Whether children's omitted particles violate grammaticality remains unanswered.

5.3. Comparing mothers and children's data

Although there is no doubt that the primary input from parents and close family members affects a child's language acquisition, the most important question is whether this input has a direct impact on the child, i.e., do children mimic the patterns of the primary input? In this section, I will address this issue by analyzing MLU (m) growth, SFPs, and ambiguous particles.

5.3.1. MLU (m) growth

As discussed in Chapter 4, by the time the children are 3;00, the MLU(m)s of the mothers and children are very similar (3.75 and 3.35 respectively). In order to analyze the correlations between the mothers' MLUs and the children's MLUs, and to look at the change in MLU over time, the data from the three children and their mothers were analyzed statistically.

Table 44, shown below, contains the correlations between month and MLU for the children and mothers, as well as the MLU correlations among the children and

mothers. With the exception of Tai's mother, all correlations with month are statistically significant at the 0.05 level.

Correlations

		month	Aki	AkiMother	Ryo	RyoMother	Tai	TaiMother
month	Pearson Correlation	1	.916**	.581**	.922**	.626**	.754**	-.158
	Sig. (2-tailed)		.000	.007	.000	.003	.000	.506
	N	20	20	20	20	20	20	20
Aki	Pearson Correlation	.916**	1	.435	.882**	.564**	.521*	-.185
	Sig. (2-tailed)	.000		.055	.000	.010	.018	.435
	N	20	20	20	20	20	20	20
AkiMother	Pearson Correlation	.581**	.435	1	.635**	.037	.654**	.044
	Sig. (2-tailed)	.007	.055		.003	.877	.002	.853
	N	20	20	20	20	20	20	20
Ryo	Pearson Correlation	.922**	.882**	.635**	1	.515*	.658**	-.146
	Sig. (2-tailed)	.000	.000	.003		.020	.002	.538
	N	20	20	20	20	20	20	20
RyoMother	Pearson Correlation	.626**	.564**	.037	.515*	1	.244	-.047
	Sig. (2-tailed)	.003	.010	.877	.020		.301	.844
	N	20	20	20	20	20	20	20
Tai	Pearson Correlation	.754**	.521*	.654**	.658**	.244	1	-.037
	Sig. (2-tailed)	.000	.018	.002	.002	.301		.877
	N	20	20	20	20	20	20	20
TaiMother	Pearson Correlation	-.158	-.185	.044	-.146	-.047	-.037	1
	Sig. (2-tailed)	.506	.435	.853	.538	.844	.877	
	N	20	20	20	20	20	20	20

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 44 Correlations Children and Mothers MLU (m)

The correlation between Ryo's MLU and that of his mother is significant, and the correlation between Aki's MLU and that of his mother is marginally significant ($p = .055$), but there is no relationship between Tai's MLU and the MLU of his mother ($p = .506$).

The correlations between Month and the children's MLUs are greater than the correlations between each Mother's MLU and her child's MLU. In fact, there are significant correlations between the each child's MLU and *another* child's mother's MLU (Aki and Ryo's mother; Ryo and Aki's mother; Tai and Aki's mother), suggesting that it is age which determines the child-mother correlations for Aki and Ryo.

When the effect of month (time) is removed from the correlation between Aki and his mother, the resulting partial correlation between the child's MLU and the mother's is not significant, $r = -.298$, $df = 17$, $p = .215$. Similarly, when the effect of month is

removed from the correlation between Ryo and his mother, the partial correlation is not significant, $r = -.206$, $df = 17$, $p = .398$.

To determine if the rate of change in MLU was the same for child and mother, tests of the difference in regression slopes were computed for each child-mother pair. In each case, the child's slope (i.e., the rate of increase in MLU) was greater than that of the mother: for Aki and his mother, $t(38) = 2.54$, $p < 0.05$; for Ryo and his mother, $t(38) = 4.00$, $p < 0.01$; for Tai and his mother, $t(38) = 3.50$, $p < 0.01$. See Chart 12 to Chart 17 below.

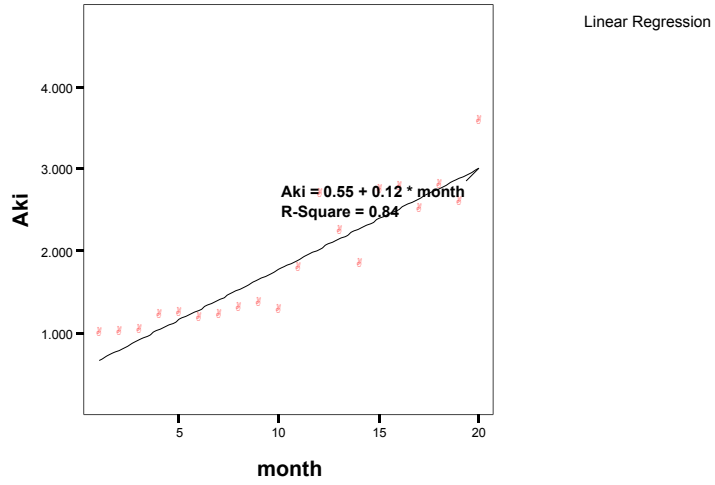


Chart 12 Aki MLU (m) Slope

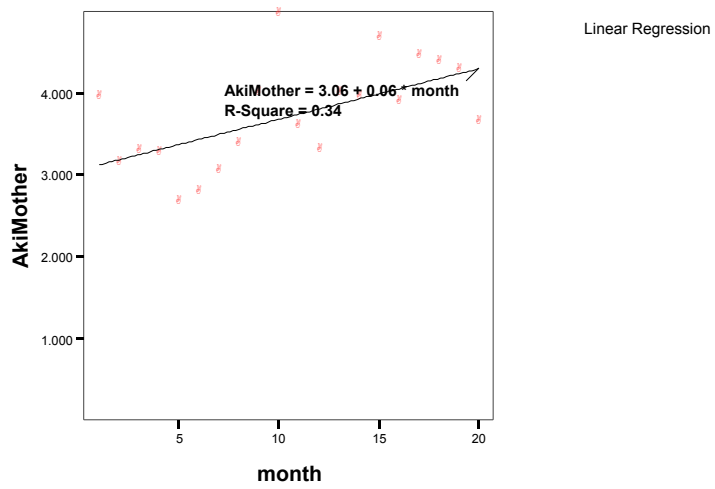


Chart 13 Aki Mothers MLU (m) Slope

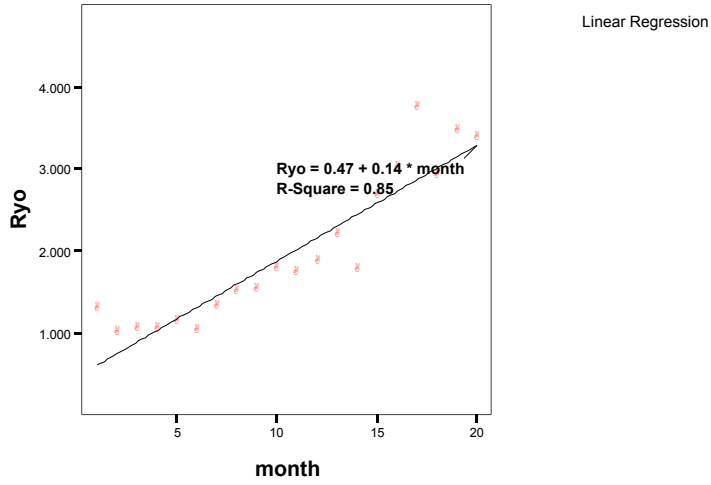


Chart 14 Ryo MLU (m) Slope

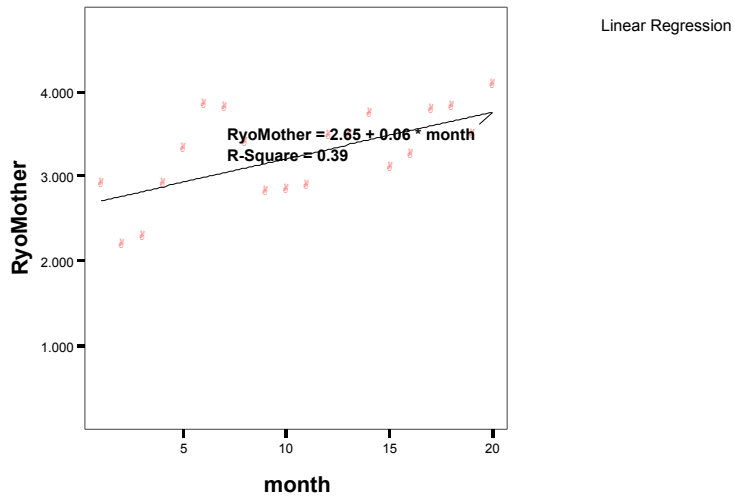


Chart 15 Ryo Mother MLU (m) Slope

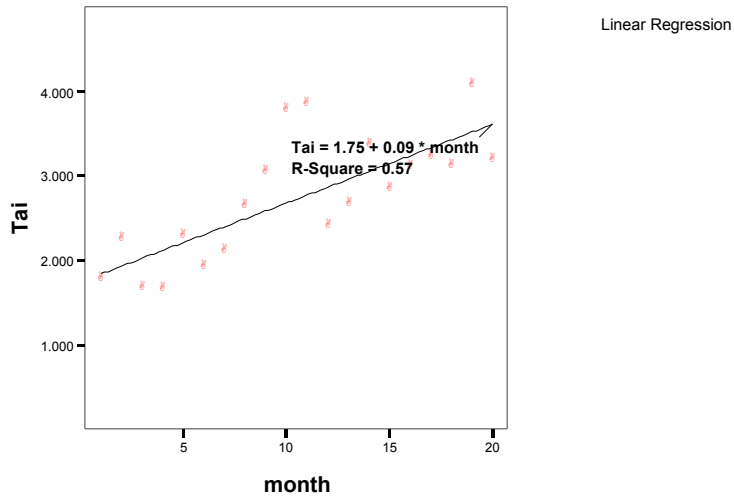


Chart 16 Tai MLU (m) Slope

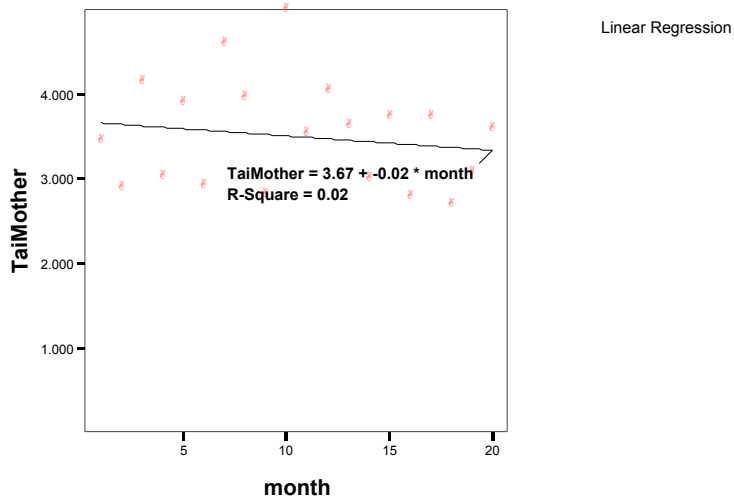


Chart 17 Tai Mother MLU (m) Slope

In order to determine if the rate of change in MLU was different among the three children, comparisons of regression slopes were computed for each pair, Aki vs. Ryo, Aki vs. Tai, and Ryo vs. Tai. None of the slope differences was statistically significant although there was a marginal effect for the difference between Ryo and Tai: for Aki vs.

Ryo, $t(38) = 0.97$, $p > 0.05$; for Aki vs. Tai, $t(38) = 1.29$, $p > 0.05$; for Ryo vs. Tai, $t(38) = 2.01$, $p = 0.051$.

In summary, the analyses show that there are correlations between the monthly MLU (m) data for mother and child for Aki and his mother, and for Ryo and his mother, but not for Tai and his mother. Each child's monthly MLU data was correlated with another child's mother's data, suggesting that age was a better predictor of MLU than mother. When month was removed, the partial correlations between Aki and Ryo and their mothers were not significant. Finally, the rates of MLU growth for the children were greater than for their mothers, but there were no differences among the children.

5.3.2. SFPs

A specific order of particle acquisition was found and discussed in the previous chapter. To recap, the SFPs *-yo*, *-ne*, and *-no* appear first followed by nominalization *-no*, *-wa* and *-ga*, various mono-syllabic particles used to mark different NP functions, and finally by the very infrequently used semantically complex bi-syllabic particles. In order to examine a possible relationship between the primary L1 input, I now compare data from the mothers and their children.

Chart 18 shows the normalized⁷¹ average of the three individual mothers' three most frequent SFPs⁷².

⁷¹ Formula: (sum of normalized %)/number of files

⁷² The normalized percentage was calculated by dividing the total number of SFP occurrences (from children's 1;05 to 3;00) by the total number of the mothers' SFP occurrences. For example, the likelihood of Aki's mother using *-ne* in any given utterance is about 10%.

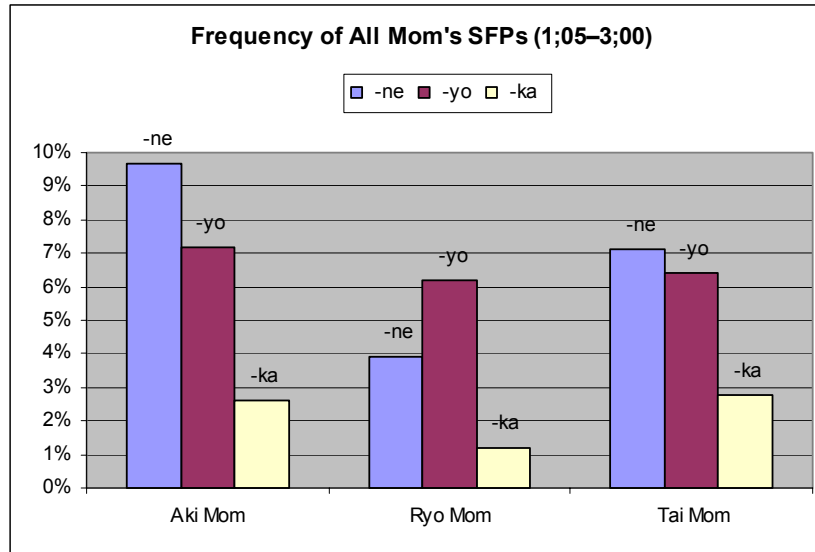


Chart 18 Frequency of All Mom's SFPs

The frequencies of the three most common SFPs used by these parents are not the same. All mothers use *-ka* the least, but Aki's mother uses *-ne* the most then *-yo*, Ryo's mother uses *-yo* the most then *-ne*, and Tai's mother uses *-ne* the most and then *-yo*.

Let us look at the SFPs from another perspective. Chart 19 to Chart 21 illustrate longitudinal data of the individual mothers' usage of the basic SFPs. These charts show normalized frequencies of the various SFPs with respect to the age of their children.

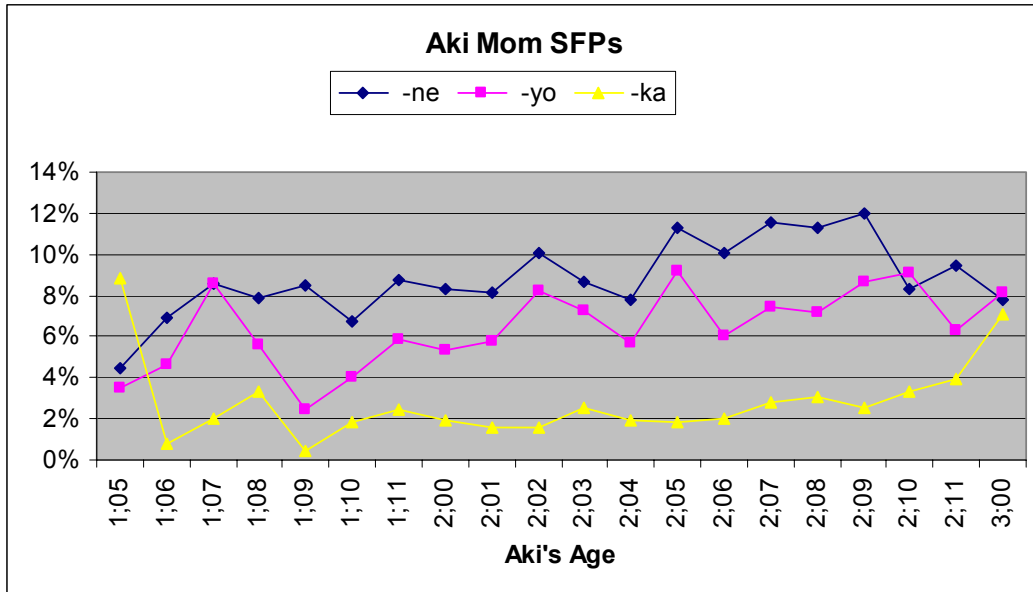


Chart 19 Frequency of Aki Mom SFPs

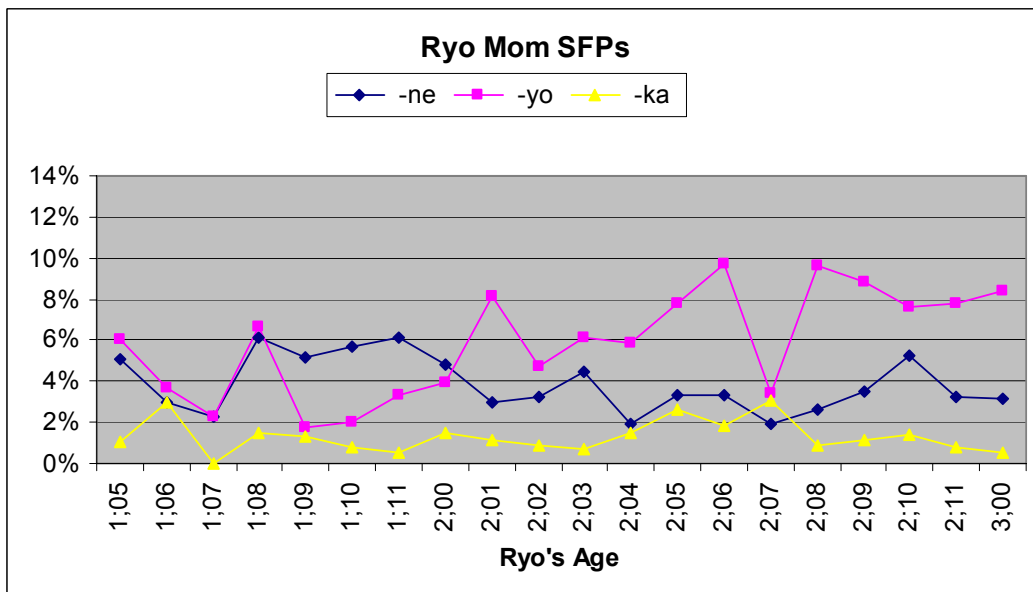


Chart 20 Frequency of Ryo Mom SFPs

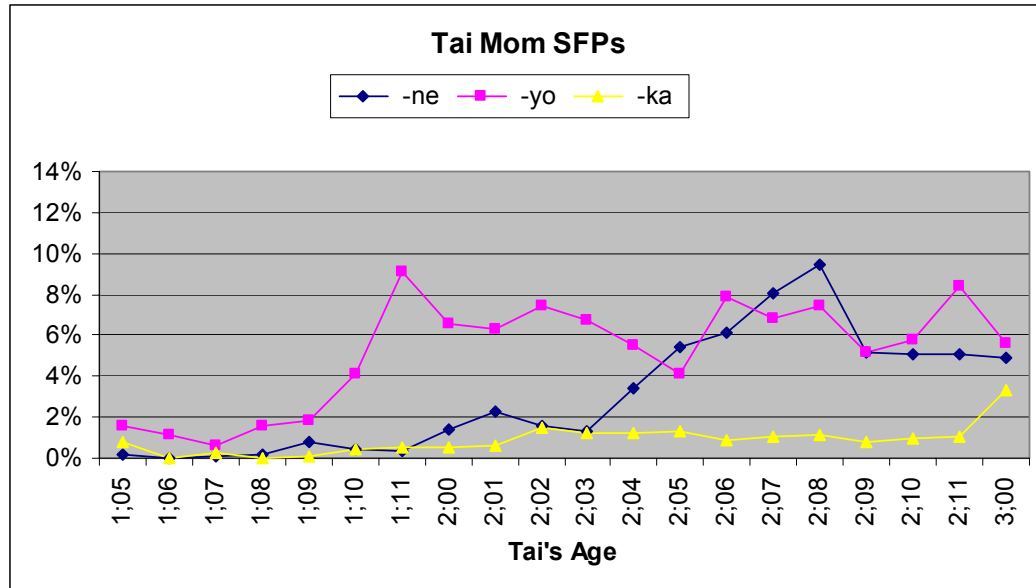


Chart 21 Frequency of Tai Mom SFPs

Although the exact ratio of each SFP is different, overall the mothers use all three SFPs fairly consistently over time. Noticeably, the usage of *-ka* is far less than that of *-yo* and *-ne* for all mothers. I assume that there are two reasons to explain this.

First, given that the three mothers mainly use plain form of verb endings with their children (which would be very natural for a casual conversation between a mother and child), using *-ka* to form a question would be unusual. A plain form verb ending with the SFP *-ka* typically carries an invasive impression. Such a usage is typically associated with an authoritative male talking to friends or subordinates. Unless a child is behaving badly it is highly unlikely that a mother would use *-ka* in this way. Secondly, since a question can be formed with a plain form verb ending with raising intonation, this is the easiest way to convert a declarative sentence into a question. In fact, when the MLU is low, the intonation strategy is the most frequent strategy used by both mothers and children.

When the mothers' and children's data are compared, the most frequently occurring SFPs in the mothers' speech, *-yo*, and *-ne*, are acquired first by their children.

This may make it appear as though children are mimicking what they hear the most, but if this was the case, the particle *-no*, regardless of whether it is an SFP or nominalization, should be the particle that is acquired first simply because it is heard the most. But, this is not the case. In general, when the particle acquisition sequences of the three children are compared against their mothers' frequencies, they do not necessarily match.

Moreover, if the three mothers are using Motherese, a special syntactic teaching device to aid acquisition, or if the mothers had decided to teach their children the SFPs first, Chart 19 to Chart 21 should show a tendency for the SFPs to be "taught" initially, i.e., SFPs should be more frequent at earlier stages. However, no such trend is observed. Moreover, it is unlikely that the three mothers all decided independently to teach the SFPs when there are many other combinations and choices of particles to teach. Finally, there is actually nothing unusual in the frequency of the basic SFPs in child speech. The basic SFPs are the most frequently used particles in adult-to-adult conversations as well. We might conclude that with respect to the basic SFPs, these three children have simply finished their acquisition.

I believe that the reason for the high frequency of the basic SFPs can be found in the pragmatic function of child-directed speech. Assuming that the primary functions of child-directed speech are to direct activity, to ask about the needs of children, and to matching referent and object (Newport, 1977), the SFPs are key to the success of those tasks. The SFP *-ne* confirms a mutual understanding between the mother and child, *-yo* emphasizes the importance of the utterance and draws the attention of the child, and *-ka* enables the mother to ask a question and inquire as to the child's needs.

In addition, the fact that the children can use the SFPs *-ka* (question) and *-yo* (emphatic) accurately (particle *-ka* only co-occurs with questions and *-yo* only co-occurs with declaratives) is evidence that the children know the basic sentence types, interrogative and declarative. This further suggests that children know the basic

illocutionary acts of asking a question, making a statement, and making a confirmation that correspond to *-ka*, *-yo*, and *-ne*.

5.3.3. Ambiguous particles

5.3.3.1. *-kara*

The data from ambiguous particles also suggests that children are not simply mimicking the frequencies of their mothers' particle usage. For example, adults use more 'reason *-kara*' (see the section 4.1.4. and 4.2.4.) than 'from-*kara*', but children start using 'from *-kara*' first. Chart 22 to Chart 24 show the frequencies of the two *-kara* usages by the three mothers.

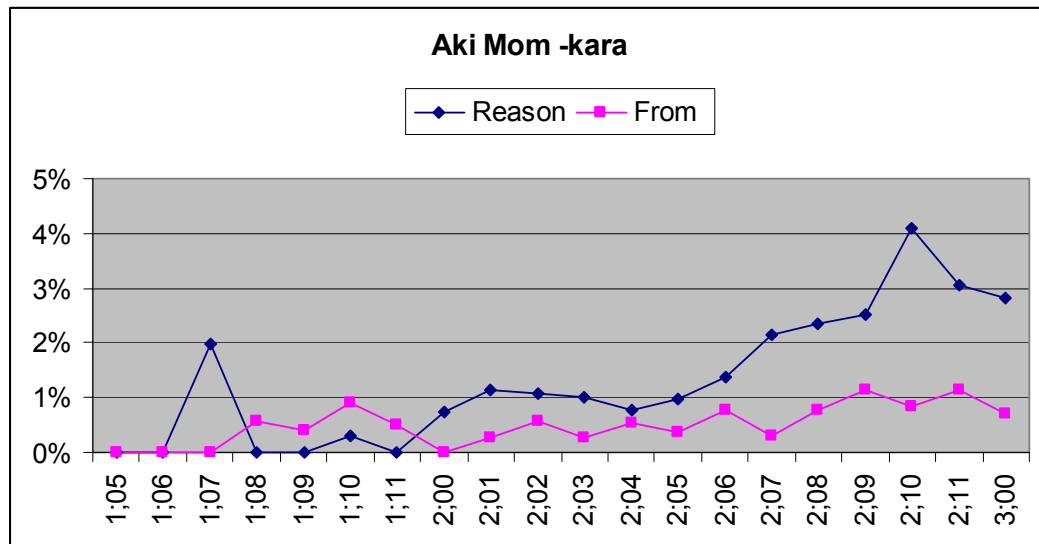


Chart 22 Aki Mom *-kara*

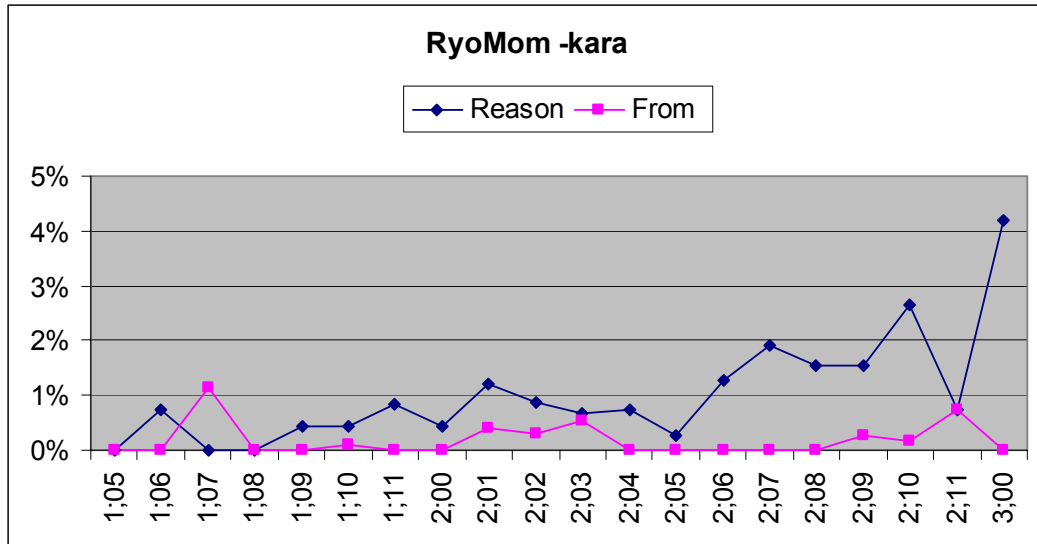


Chart 23 Ryo Mom -kara

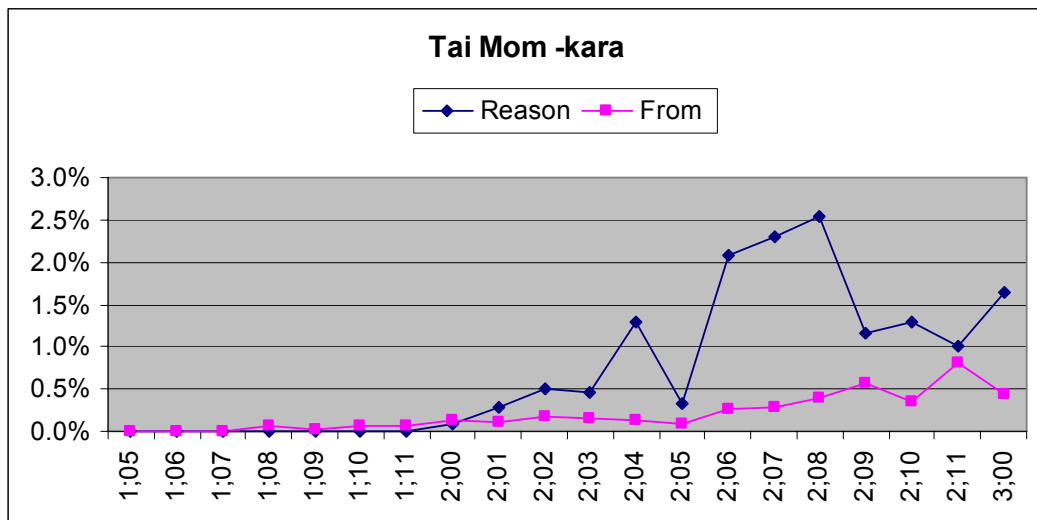


Chart 24 Tai Mom -kara

Although the rates of usages are slightly different from one mother to the next, 'reason -kara' is clearly the one the mothers use more. Nevertheless, the emergence of 'from -kara' precedes 'reason -kara' for all three children. Aki's 'from -kara' emerges at MLU (m) stage III at the age of 2;04 while 'reason -kara' emerges at MLU (m) stage IV at the age of 2;07. Ryo's 'from -kara' emerges at MLU (m) stage II at 2;02 while 'reason -kara'

emerges at MLU (m) stage II at 2;03. Finally, Tai's 'from *-kara*' appears at MLU stage III at 1;08 and his 'reason *-kara*' at MLU stage IV at 2;00.

Whether children consciously know that there are two different *-kara* actually remains unanswered, but it is logical for the children to use 'from *-kara*' earlier since the sentences that contain 'from *-kara*' are typically shorter than those that use 'reason *-kara*'. The usage of 'reason *-kara*' is only possible when the MLU is longer and the syntax is complex enough to describe causal relations.

5.3.3.2. *-ni*

Following Chart 25 to Chart 27 illustrate the frequency that the three mothers' use the different *-ni*.

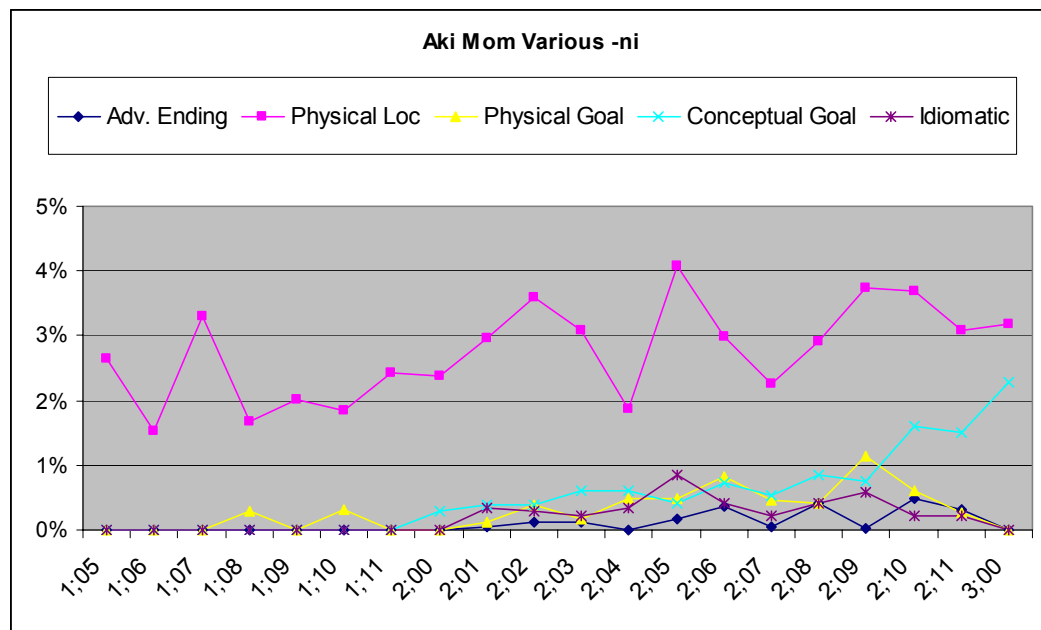


Chart 25 Aki Mom Various *-ni*

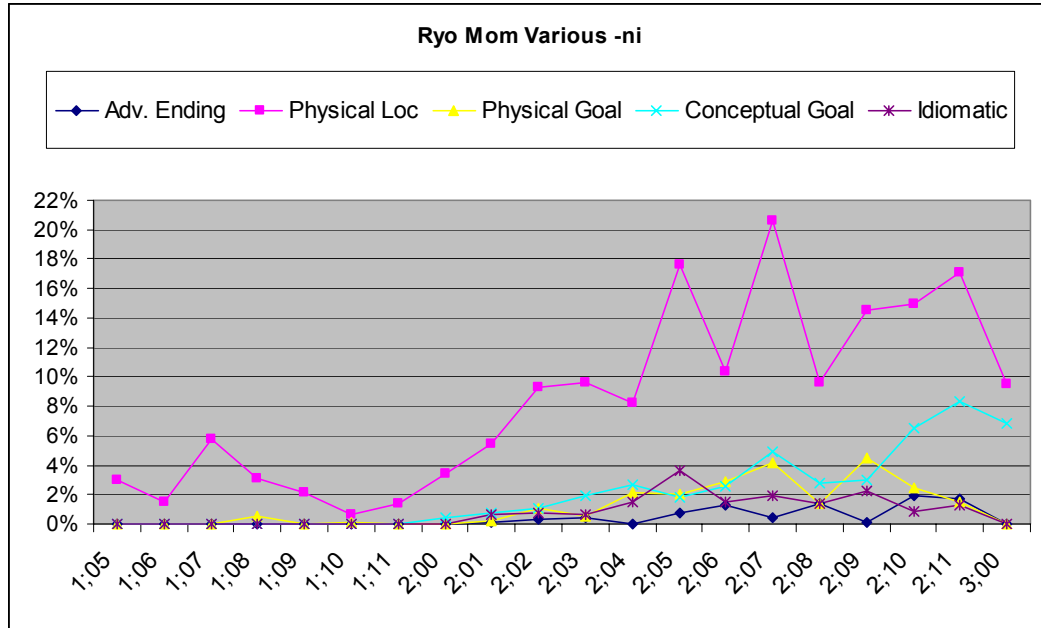


Chart 26 Ryo Mom Various -ni

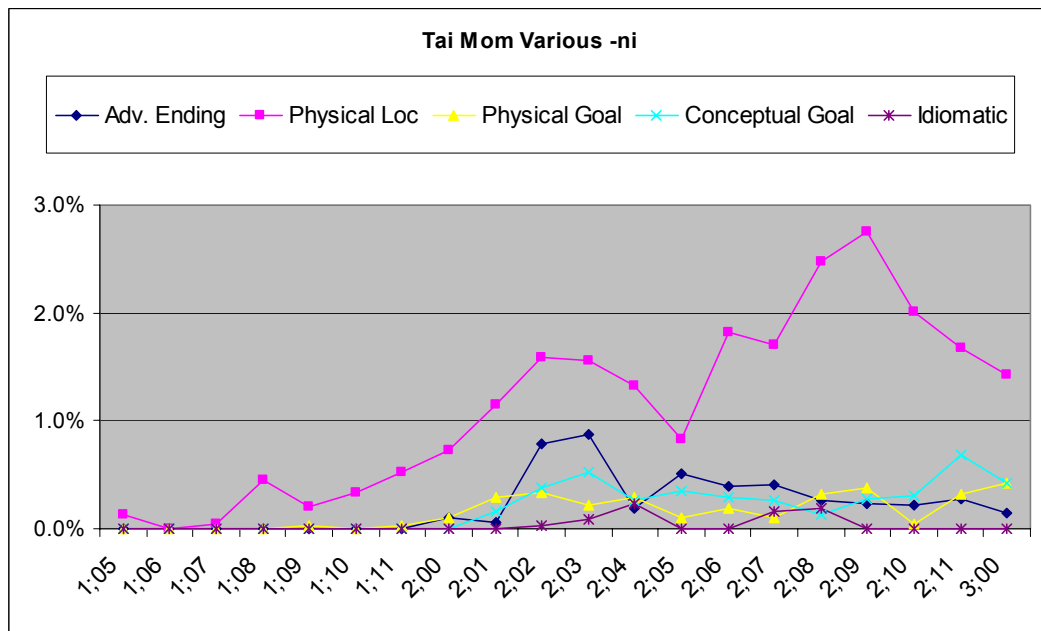


Chart 27 Tai Mom Various -ni

As displayed above, the most frequently used kind of *-ni* by the mothers is 'physical location *-ni*'. The second most frequently used *-ni* is 'conceptual goal *-ni*' for Aki and

Ryo's mother, and both 'adverbial ending *-ni*' and 'conceptual goal *-ni*' for Tai's mother. When the three children's emergence order of the various *-ni* is compared to their mothers, indeed the *-ni* that appears the first is 'physical location *-ni*'. On the other hand, not all mothers input and children's particle emergence match. For example, although Ryo's mother uses 'conceptual *-ni*' a great deal, Ryo does not use it at all. Similarly, Tai's mother uses 'adverbial ending *-ni*' in her speech, but Tai does not use it at all.

I speculate that the frequent usage of 'physical location *-ni*' is influenced by the situation of the conversation between mother and child. Since the JCHAT data was collected in a setting where the child was playing with toys indoors with their mother, presumably the physical locations of toys and other people played a large role in the conversation. Regardless of the exact reason, we see again that the all children begin to use the *-ni* associated with conceptually concrete meanings before moving on to more abstract meanings.

In summary, after analyzing the mother's and children's MLU (m), SFPs, and ambiguous particles, two facts are discovered. First, children are able to use SFPs like adults in the earliest stage of particle acquisition. This indicates that the children acquire basic illocutionary acts very early in the process of learning their native language. Second, it appears that the children have their own agenda when it comes to their MLU (m) development and particle acquisition. Statistical analysis of monthly MLU (m) revealed three results: (i) There is no correlation between mother's MLU (m) changes and the children's MLU (m) growth, (ii) the months are the real predictor of children's MLU (m) growth, not mothers' MLU (m), and (iii) there is no statistically significant connection between the children's MLU (m) growth over time. Moreover, the analysis of ambiguous particle *-ni* demonstrates that despite their mother's usage (which is mixed between concrete and conceptual usages), each child begins to use the particle in concrete ways, such as indicating physical location. Similarly, with respect to the

acquisition of ambiguous *-kara*, they begin to use the causal *-kara* only after their MLU and cognitive ability are sufficiently developed to discuss causal relationships. This is true in spite of the fact that in the mothers' data, causal *-kara* is more frequent than location *-kara*.

5.4. Discussion of *-wa* and *-ga*

As discussed in Chapter 4, children begin to use case particle after the basic SFPs. It is logical for the nominative case marker *-ga* to appear before the accusative marker *-o* or dative marker *-ni* since the MLU (m) is very short in the early stages of development. In other words, their syntax is not sophisticated enough to produce a sentence with a direct or indirect object. However, the fact that *-wa* and *-ga* appear so closely in the speech of all three children is enigmatic. We know that *-ga* and *-wa* are not related syntactically from discussion in section 4.4.4, i.e., *-ga* is the nominative case marker but *-wa* does not function as a conveyer of any syntactic information.

In what follows, I argue that the pragmatics of speech acts may be the key to link these two particles. As was demonstrated already, accurate usage of SFPs indicates the children's awareness of sentence types such as questions, statements, confirmations, i.e. accurate usage of SFPs indicates that children know something about speech acts. I claim that this knowledge can help explain the more or less simultaneous appearance of *-wa* and *-ga* in the speech of children.

As far as I am aware, no one has looked at the acquisition of *-ga* and *-wa* and their possible correlation. As noted earlier, this is rather surprising considering all the debate and research focused on the meanings, functions, and distinctions between *-ga*

and *-wa*⁷³. I believe that one reason that *-ga* and *-wa* have not been examined together is that there is no cohesive theory that sufficiently explains their distribution.

I begin with a discussion of the current linguistic view of *-ga* and *-wa* in the following section.

5.4.1. Description of *-ga* and *-wa*

5.4.1.1. *-ga* and *-wa* by Kuno (1973)

The most cited description of *-wa* and *-ga* is found in Kuno (1973). Kuno describes two different usages of *-wa* and three different usages of *-ga*.

According to Kuno, *-wa* is used in two different ways: thematic and contrastive. Kuno describes the nature of themes in the following:

It seems that only objects and concepts that have been mentioned and recorded in the registry of the present discourse can become themes of sentences. Nouns of unique reference in this universe of discourse....Once their entry in the registry is established, they do not have to be reentered for each discourse. Objects of some specific reference are added to the registry of the current discourse the first time they are mentioned....Only after this entry in the registry is accomplished can they become themes of sentences.

(Kuno 1973 p. 39)

Kuno also notes that the theme or topic of a sentence is typically generic or anaphoric. A generic theme refers to a generic noun phrase, such as *man* (all men in general) or the *Japanese* (Japanese in general, all Japanese, any Japanese) which indicates a general concept. For example, *Japanese* in the following sentence is a generic theme.

(7) Speaking of the *Japanese*, they are hardworking people.

(Kuno 1973 p.41)

⁷³ The particles *-ga* and *-wa* have been at the center of Japanese linguistic research and discussion for over half a century. The followings are just a few examples taken from the extensive literature on *-wa* and *-ga*: Mikami (1960), Kuno (1973), Kuroda (1965), Hinds, Maynard, and Iwasaki (1987), Noda (1996). It may be said (only somewhat tongue in cheek) that one is not a real Japanese linguist until one has said something about *-ga* and *-wa*.

Therefore, *-wa* attaches to *nihonjin* which means Japanese (people) in (8).

- (8) Nihonjin-wa kinben da.
Japanese-top hardworking copula
"Speaking of the Japanese, they are hardworking people."

An anaphoric theme is a noun phrase that has already been mentioned in the discourse so that the speaker and listener have a mutual understanding of the reference of the noun phrase. In other words, the antecedent of an anaphoric noun phrase can be found in the same sentence or in a previous sentence. For example, in (9), *-wa* attaches to the antecedent of the anaphoric noun phrase *John*. On the other hand, when *-wa* attaches to *omoshiroi hito* (interesting person/people) without a specific reference as in (10), ungrammaticality results.

- (9) John-wa watakushi no tomodachi desu.
Japanese-top I s friend copula
"Speaking of John, he is my friend."
(Kuno 1973 p. 44)

- (10) *Omoshiroi hito -wa paatii-ni kimashita.
Interesting people-top party to came
"Speaking of the funny person/people, they came to the party."
(Kuno 1973 p. 45)

Particle *-wa* can also appear when noun phrases are contrasted. For example, *-wa* is attached to *Mary* which is contrasted with *John* in the following sentence below.

- (11) John -wa kita kedo Mary -wa konakatta.
Jon-TOP come past but Mary -CONTRAST come past
"John came, but Mary didn't."

Thematic *-wa* and contrastive *-wa* can appear in the same sentence. Kuno observes that in such a case only the first NP-*wa* can be thematic while any others are contrastive. For example, the first *-wa* in the following sentence (12) is thematic and the other two are contrastive.

- (12) *Watashi-wa tabako-wa suimasu ga sake-wa nomimasen.*
 I -top cigarette -contrast smoke but sake-contrast drink not
 "Speaking of myself, I smoke cigarettes but I do not drink alcohol."
 (Kuno 1973 p. 48)

Kuno explains that *-ga* is used in three different ways: description of actions or temporary states, exhaustive-listing, and object marking. Descriptive *-ga* only attaches to the subject of predicates that contain action verbs as in (13), existential verbs as in (14), and adjectives/nominal adjectives that represent changing or temporary states as in (15).

- (13) *Tegami -ga kita.*
 letter-subj came
 "Mail has come."

- (14) *Tsukue no ue-ni hon-ga aru.*
 Desk s top -loc book-subj exist
 "There is a book on the table."

- (15) *Sora -ga akai.*
 Sky -subj red
 "The sky is red."

(Kuno 1973 p. 50)

Also, exhaustive-listing *-ga* attaches to the subject of a sentence when a specific list is expected, as in the answer to a question.

- (16)
 a. *Dare-ga gakusei desu-ka.*
 who-subj student copula question
 "Who is a student?"
 b. *John to Tom-ga gakusei desu.*
 John and Tom-subj student copula
 "John and Tom are students"

(Kuno 1973 p. 52)

Sentence (16b) implies that that utterer of the sentence knows that both John and Tom are students. If she/he knew that Tom was a student but did not include Tom in his or her answer, it would be understood as being deceptive, i.e. the implication of the exhaustive listing reading is that the speaker is giving a complete list of possible answers.

In addition, *-ga* also marks the object of stative verbals. Stative verbals are described as following:

...a handful of transitive verbs (such as *dekiru* 'to be able to', *wakaru* 'understand', and *iru* 'need'), all transitive adjectives (such as *hosii* 'wants', *tabetai* 'be anxious to eat', and all transitive nominal adjectives (such as *suki* 'be fond of', *negate* 'be bad at').

(Kuno 1973 p. 55)

The following examples show *-ga* marking the objects of stative verbals.

(17) John-wa eigo-ga dekiru.
John -top English -stative obj can
"Speaking of John, he can speak English"

(18) Boku-wa okane-ga hoshii.
I -top money - stative obj want
"Speaking of myself, I want money"

(19) John-wa Mary-ga suki desu.
John -top Mary-stative obj fond of is
"Speaking of John, he likes Mary"

(Kuno 1973 p.55)

5.4.4.2. *-ga* and *-wa* in Discourse

From a traditional discourse theory point of view (see, for example, Matsushita 1930, Kuno 1972, and Oono 1978), *-ga* is argued to mark a noun phrase describing "new information" while *-wa* marks "old information." Kuno (1972) describes the functions of *-ga* as follows:

...what is old, predictable information and what is new, hence unpredictable information in a given sentence, ... *ga* is a marker that indicates that the subject represents new, unpredictable information in the sentence.

(Kuno 1972 p. 269)

And Kuno (1973) explains the nature of thematic *-wa* to be the following:

...only objects and concepts that have been mentioned and recorded in the registry of the present discourse can become themes of sentences.

(Kuno 1973 p.39)

That is, when one can assume that the listener is already familiar with the object denoted by a given noun, whether it is the subject or the object, the NP is marked with *-wa*. On the other hand, when one cannot predict the information, the NP is marked by *-ga*. To illustrate the view, observe the contrast below.

(20) John-ga kimashita-yo.
John-NOM came -emphatic
"John came!"

(21) John-wa kimashita-yo.
John-NOM came -emphatic
"John came!"

Let us suppose one uttered (20) or (21) at the beginning of a conversation. Both (20) and (21) describe the fact that a person, *John*, has arrived. However, since *John* is marked with *-ga* in sentence (20), this sentence implies that *John* is new information to the listener, i.e., there has been no previous mention of *John* in the conversation, and presumably the listener does not know anything about *John*. Hence, a possible response to (20) by the listener may be "What? Who's John?" because (20) may turn out to be a surprise to the listener. On the other hand, since *John* is marked with *-wa* in sentence (21), sentence (21) implies that *John* is old information with respect to the listener, i.e., the speaker has mentioned something about *John* before or the speaker assumes the listener knows about *John*. Hence, a possible reply to (21) by the listener may be "Oh, really? Where is he? When did he get here?" When *John* is *wa*-marked, it is the predicate, the fact of his arrival, that is the new information.

According to this analysis, we might assume that an NP is introduced with *-ga* when it appears for the first time, while the same NP will be marked with *-wa* if it

reappears in narrative contexts. Such a pattern is illustrated in (22) which is an excerpt from the beginning of a traditional folktale.

- (22) Mukashi mukashi arutokoro-ni, [**ojiisan-to obaasann**]-ga sundeimashita. Mainich **ojiisan-wa** yama-ni shibakari-ni, **obaasan-wa** kawa-ni sentaku-ni ikimashita.

“Once upon a time, there were **a grandpa and grandma** (-ga) living somewhere. Everyday, **the grandpa** (-wa) went to the mountains to collect firewood and **the grandma** (-wa) went to the river to do the laundry.”

(From a folktale, Momotaroo-san)

The NP contains the main characters, *ojiisan* ‘grandpa’ and *obaasan* ‘grandma’, which are marked with *-ga* when introduced for the first time in the story. When they appear for the second time both characters are marked with *-wa*, this time as “old information.”

This *-ga* to *-wa* transition can explain many examples, yet there are many occurrences where it fails to do so. That is, the dichotomy of “new information” and “old information” does not explain all usages of *-ga* and *-wa*. Other research suggests that additional details and refinements of this account are necessary. For example, Hinds and Hinds (1979) propose that *-ga* and *-wa* establish a global theme or reference to characters appearing in a story. They claim that the referential form used to introduce a character in a story has a typical progression in narratives: a *-ga* marked NP progresses to a *-wa* marked NP as old information (as in the example above) then the entire *-wa* marked NP is omitted on subsequent mentions. For instance, the passage in (23) from a novel illustrates this progression.

- (23) Ninensei-no **Asakura Sachiko-ga** tookooshitekita. **Asakura-wa** hagirenoii koe-de aisatsu-o shitekita. **Asakura-wa** kotoo -o jibunnorokka-ni ireta. Ø Shiroi samaaseetaa-ni jinzutoiu sugatadatta.

“Second year student, **Asakura Sachiko** (-ga) arrived school. **Asakura** (-wa) greeted me with crisp voice. **Asakura** (-wa) put her coat into her own locker. Ø (Asakura) was wearing a white summer sweater and jeans.”

(Excerpt from a novel, *Parasite Eve*, by Hideaki Sena, p.9)

First, an NP referring to a new character named Asakura is introduced with *-ga*. The character's name is *-wa* marked the second and third times it is mentioned. Finally, the NP (and the *-wa* marking) is completely absent on the fourth mention.

Clancy and Downing (1987) further analyze the referential progression of *-ga* and *-wa* in a collection of oral narratives and cartoons. Clancy and Downing point out that the Hinds and Hinds (1979)'s information progression sequence is also not that clear-cut. They report that most frequently (63.8 % of occurrences on average), a character's name is introduced with *-ga* marking, as new information, but then the NP referring to the character is immediately elided when it gets reintroduced. This result goes against Hinds and Hinds (1979). In Clancy and Downing's data, the progression sequence introduced by Hinds and Hinds (NP-*ga* → NP-*wa* → Ø) was in fact rare (only 5.5% of occurrences). Furthermore, Clancy and Downing discovered that *-wa* marked NPs were consistently contrastive in a local environment in the story. In other words, *-wa* marked NPs are not necessarily marked by thematic *-wa* to establish a global theme or reference to characters (as proposed by Hinds and Hinds (1979)). Instead, Clancy and Downing suggest that *-wa* often serves as a “cohesive device” tying together locally contrasting elements.

Hinds et al. (1987) attempts to refine the theory of *-ga* and *-wa* usage in a survey of newspaper articles. He discovers that not only *-ga*, but *-wa* as well can mark new

information in certain contexts. He suggests that a writer of a story will mark NPs that contain new information with *-wa* when s/he desires a dramatic and rhetorical effect in which order to draw the readers into a story.

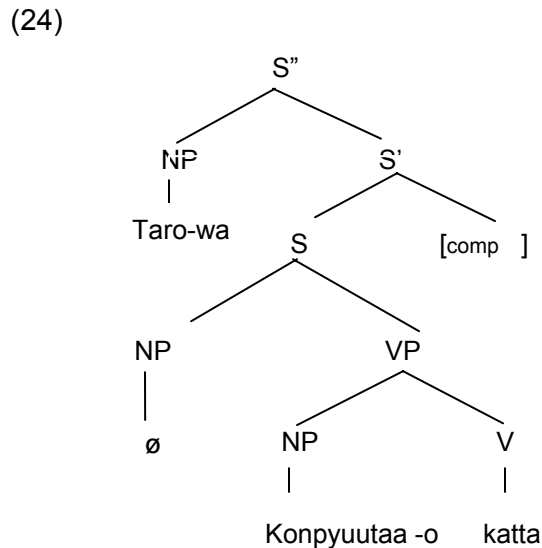
In summary, although the discourse approach reveals certain contextual conventions and enables some explanations and descriptions of (specific) conditions in which *-ga* and *-wa* appear, the approach remains anecdotal and lacks a any coherent general principles that predicts the distribution of *-ga* and *-wa*.

5.4.4.3. *-ga* and *-wa* in Syntax

When one begins the investigation of the syntactic structure of particles, difficulties immediately come to light. The syntactic status of Japanese *-ga* and *-wa* continues to be controversial, i.e., *-ga* and *-wa* has been have be treated in a number of different ways, as clitics, post-positions, functional heads, and such. For example, Miyagawa (1989), Whitman (2001), and McClure (2004) each provide their own perspectives. The following briefly recapitulates the discussion from Chapter 2 focusing on the different analyses of *-ga* and *-wa*.

Miyagawa (1989) defines the case marker *-ga* as a clitic attaching to an *argument*. As discussed in Chapter 2, this claim is motivated by the source of the assigned thematic role (which distinguishes case markers from adjunct-marking postpositions). As for the structure of *-wa* phrases, Miyagawa accepts at least three syntactic analyses: base generation as proposed by Kuno (1973), adjunction by movement as proposed by Saito (1985), and an *in situ* analysis as proposed by Kuroda (1965) (All three analyses are compatible with his numeral quantifier float data to explain his argument vs. adjunct distinction so Miyagawa does not distinguish between them.)

For the analysis of topic/thematic *-wa*, Miyagawa assumes that it is base generated under the position dominated by the S", as proposed by Kuno (1973) as depicted in (24) below.



(Miyagawa 1989 p. 72)

For contrastive *-wa*, two possible structures are considered. Adjunction by movement to S, as proposed by Saito (1985), suggests that contrastive *-wa* is derived by movement. The object of the verb in (25) is moved out of VP, then adjoined to S. The derivation is shown in (26).

(25) Konpuutaa-wa, Taroo-ga katta.
 Computer CONT Taroo-nom bought
 "As for the computer, Taro bought it."

(26) [s Konpuutaa *i*-wa, [s Taro-ga [vp *t*_i katta]]]
 Computer CONT NOM bought

(Miyagawa 1989 p.73)

Another possible structure is an *in situ* analysis as proposed by Kuroda (1965). His idea is that contrastive *-wa* is generated at the end of a sentence but attaches to a phrase within the original sentence. For example, sentence (27) has three possible variations, (27a) to (27c).

- (27) [s Taro tosyokan de hon yomanakatta-] -wa
 Library at book didn't read
 'Taro didn't read a book at the library.'
- a. Taro-wa tosyokan de hon -o yomanakatta.
 CONT Library at book ACC didn't read
- b. Taro-ga tosyokan de-wa hon -o yomanakatta.
 NOM Library at CONT book ACC didn't read
- c. Taro-ga tosyokan de hon -wa yomanakatta.
 NOM Library at book CONT didn't read

Another hypothesis is presented by Whitman (2001). He proposes that the nominative *-ga* and topic marker *-wa* are phrasal heads under I and C, respectively. Whitman's analysis explains some syntactic phenomena such as particle stacking and scrambling, yet the status of contrastive *-wa* is not accounted for. In contrast to Miyagawa, McClure (2004) argues that there is no structural difference between case markers and other post-positional particles. Following Tateishi (1989), McClure suggests that both arguments and adjuncts fit into a DP-like structure. On this view, the structure of noun phrases with *-ga* (and other case particles) and PPs are identical. On the other hand, the structure of *-wa* marked phrases is not discussed at all.

Crucial questions remained unanswered. As we have seen in the syntactic and descriptive analysis presented by Kuno (1973), *-ga* and *-wa* are treated as separate kinds of entities *-ga* as a syntactic subject marker, and object marker for stative verbs as opposed to *-wa* which indicates theme and contrast. The host of *-wa* does not have any particular syntactic status. This is typical. Only Whitman treats both particles similarly, arguing for a particular syntax. Problematically, theories that treats *-ga* and *-wa* (topic and/or contrastive) as distinct kinds of linguistic objects make it difficult to explain Miyahara (1974), or the data discussed in Chapter 4 which shows that the two particles are learned very closely together. The acquisition data suggests that *-wa* and *-ga* are

somehow linked to each other. A theory is needed that provides a motivation for why a child should learn *-ga* and *-wa* at the same time.

5.4.3.4. *-ga* and *-wa* in Speech Act Theory

Such a theory is found in Fiengo and McClure (2002). Fiengo and McClure apply Austin's (1953) speech act theory to give a comprehensive explanation for the distribution of *-ga* and *-wa*. Austin uses a simplified sentence form, "X is Y," which consists of an item and predicate⁷⁴ as in (28) to represent various speech situations. In this simplified sentence form, there is an item referred to by its own name, and there is a predicate.

(28) That bird is a nuthatch.⁷⁵
 Item Predicate

When a speaker utters a sentence, the utterance is "satisfactory" only when the reference of the name and the sense of predicate "match," i.e., the speech act in example (28) is successful if the item denoted by *that bird* actually is *a nuthatch*.

According to Austin, there are two dimensions on which to make matches that describe different speech acts, namely "direction of fit" and "onus of match." (I will not discuss "onus of match" here since it is not relevant to our discussion. See Footnote 76 for a description.) "Direction of fit" implies that an item and predicate can be matched in two directions. That is, in a given sentence, either (i) an item is produced to fit a specific

⁷⁴The terms "item" and "predicate" refer to Austin's (1953) I-word and T-word.

⁷⁵ Fiengo and McClure (2002) use the term "predicate" to refer to the part of sentence after the initial NP.

type of predicate or (ii) a predicate is produced to fit a specified item. This “direction of fit” is critical to the successful theory of the distribution of *-ga* and *-wa* in Japanese.

Before expanding on this point, let us look at some examples. Suppose a conversation takes place as follows.

- (29) Calling
A: What do you call that bird?
B: That bird is a nuthatch.

(Fiengo and McClure 2002, p.11)

Speaker B replies to A by producing the predicate *is a nuthatch* to match the type of the bird, which is the item referred to by *that bird*. In doing so, Speaker B performs the speech act of Calling by responding to A. (30) is another example of a predicated being fitted to a given item.

- (30) Describing
A: How would you describe that bird?
B: That bird is a nuthatch.

(Fiengo and McClure 2002, p.11)

Speaker B performs a Describing act by producing the predicate *is a nuthatch* to match to the type of the bird, which is the item referred to by *that bird*.

On the other hand, the same sentence that is used in (29) and (30), i.e. *That bird is a nuthatch*, can also function in the “opposite” direction if A asks the kinds of questions in (31) and (32).

- (31) Classing
A: Which of these birds is a nuthatch?
B: That bird is a nuthatch.

(Fiengo and McClure 2002, p.11)

In (31), Speaker B performs a Classing act by producing an item, *that bird*, to match the sense of the predicate, *is a nuthatch*. Another example of this “direction of fitting” is shown below (32).

- (32) Exemplifying
 A: I can't seem to tell nuthatches from titmouses.
 Show me an example of nuthatch?

B: That bird is a nuthatch.

(Fiengo and McClure 2002, p.11)

Speaker B produces the item, *that bird*, to match the sense of the predicate, *is a nuthatch*, in order to answer to A's question. Speaker B performs a speech act of Exemplifying in this case. The following table summarizes the "direction of fit" with examples.

Direction of fit		
Predicate to Item	Calling What do you call that bird? That bird is a nuthatch.	Describing How would you describe that bird? That bird is a nuthatch.
Item to Predicate	Exemplifying Show me an example of nuthatch? That bird is a nuthatch.	Classing Which of these birds is a nuthatch? That bird is a nuthatch.

Table 45 Direction of Fit in English

As can be seen above, all four speech acts (Calling, Describing, Exemplifying, and Classing) can be realized in English with a single sentence, i.e. *That bird is a nuthatch*. Importantly, there is no distinction in the truth conditions of the four speech situations; in all cases, if speaking truthfully, the bird in question *is* a nuthatch. In

Japanese however “direction of fit” determines whether a sentence contains a *-ga* or *-wa* marked NP⁷⁶.

Let us consider the parallel examples in Japanese. When Austin’s simplified sentence form is applied to Japanese, a *-ga* or *-wa* marked initial NP is the item and the rest of the sentence is the predicate as in example (33).

⁷⁶ “Onus of match distinguishes that which is taken for granted and that concerning which there might be doubt” (Fiengo and McClure 2002, p.9). For instance, the sentence in (i) can satisfy onus of match in two directions.

- (i) John is as evil as Satan. (Fiengo and McClure 2002, p. 9)

One can doubt whether the item denoted by *John* matches the sense of being *as evil as Satan* or doubt that the predicate, *as evil as Satan*, matches the item denoted by *John* (although in such a case, the former interpretation is usually preferred). Other examples are given in (ii) and (iii).

- (ii) A: How would you describe that bird?
B: That bird is a nuthatch. (Describing) (Fiengo and McClure 2002, p.11)

The speaker B replies to A to produce the predicate *is a nuthatch* to match to the item *that bird*, which is given from previous sentence uttered by A where doubt is cast on the item.

- (iii) A: I can’t seem to tell nuthatches from titmouses.
Can you show me an example of nuthatch?
B: That bird is a nuthatch. (Exemplifying) (Fiengo and McClure 2002, p.11)

The speaker B replies to A to produce the item, *that bird* to match to the predicate *is a nuthatch*, which is given in the previous sentence uttered by A where doubt is cast on the predicate. These “direction of fit” and “onus of match” examples define Austin’s Quartet, four kinds of speech acts, as shown in the following diagram. Each sentence type has a distinct direction of fit and onus of match and are labeled: Calling, Describing, Exemplifying, and Classing.

	Onus on predicate	Onus on Item
Direction of fit from Predicate to Item	Calling What do you call that bird? That bird is a nuthatch.	Describing How would you describe that bird? That bird is a nuthatch.
Direction of fit from Item to Predicate	Exemplifying Show me an example of nuthatch? That bird is a nuthatch.	Classing Which of these birds is a nuthatch? That bird is a nuthatch.

(Fiengo and McClure 2002, p.10 with examples)

- (33) **Ano hana-ga/wa sakura desu-yo.**
 That flower NOM/TOP cherry blossom copula emphatic
 "That flower is a cherry blossom!"
- Item
Predicate

The following examples are of the speech acts Calling and Describing where the required "direction of fit" is to fit a given item to the sense of the predicate.

(34) **Calling**

A: Are-wa nantoiu hana desu-ka.
 That TOP what called flower copula question
 "What is that flower called?"

B: Ano hana-wa sakura desu-yo.
 That flower TOP cherry blossom copula emphatic
 "That flower is a cherry blossom!"

(35) **Describing**

A: Are-wa donoyoona hana desu-ka.
 That TOP how looks like flower copula question
 "How would you describe that flower?"

B: Ano hana-wa sakura desu-yo.
 That flower TOP cherry blossom copula emphatic
 "That flower is a cherry blossom!"

The following examples are of the speech acts of Exemplifying and Classing where the required "direction of fit" is to fit a given predicate to the sense of the item.

(36) **Exemplifying**

A: Sakura to ume no chigai-ga wakarimasu-yo-ne.
 Cherry blossom and plum of difference -NOM understand emphatic seeking for agreement
 "You know, I can't tell the difference between Cherry blossom and plum blossom"

Sakura-o misetekudasai..
 cherry blossom ACC show please
 "Please show me a cherry blossom."

B: Ano hana-ga sakura desu-yo.
 That flower NOM cherry blossom copula emphatic
 "That flower is a cherry blossom!"

(37) **Classing**

A: Kono hana no nakade dore-ga sakura desu-ka.
 this flower of among which NOM cherry blossom copula question
 "Which of these flowers is a cherry blossom?"

B: *Ano hana-ga sakura desu-yo.*
 That flower NOM cherry blossom copula emphatic
 "That flower is a cherry blossom!"

The following diagram summarizes "direction of fit" with examples in Japanese.

Direction of fit		
Predicate to Item	Calling What is that flower called? Ano hana- wa sakura desu-yo.	Describing How would you describe that flower? Ano hana- wa sakura desu-yo.
Item to Predicate	Exemplifying Please show me the cherry blossom. Ano hana- ga sakura desu-yo.	Classing Which of these flowers is a cherry blossom? Ano hana- ga sakura desu-yo.

Table 46 Direction of Fit in Japanese

As one can see in Table 46, Austin's "direction of fit" as it is realized in Japanese sheds light on the distinction between *-ga* and *-wa*. A *-wa* marked NP is used when a predicate is produced to match the type of the item. On the other hand, a *-ga* marked NP is used when an item is produced to match the type of the predicate, i.e., the particles *-wa* and *-ga* are "direction of fit" indicators. *-wa* marks information that is given, whereas *-ga* marks information that is produced. This suggests that *-ga* and *-wa* perform complementary functions with respect to speech acts. This explanation is independent of any given analysis of the underlying syntactic structure.

Fiengo and McClure suggest that this generalization can offer a unified account for a variety of facts that are not fully explained by syntactic- or discourse-based

explanations. For example, (38b) is an instance of a *-wa* marked wh-word causing ungrammaticality. However, when the initial NP is marked with *-ga*, it is grammatical.

- (38) a. Dare-ga haitte-kita no?
 who NOM enter come question
 “Who came in?”
- b. *Dare-wa haitte-kita no?
 who TOP enter come question
 “Who came in?”

(Fiengo and McClure p.13)

According to Kuno (1973), the reason for the ungrammaticality is that *wa*-marked NPs must be themes, i.e., a *-wa* marked NP must have been previously mentioned in the discourse, but (38b) violates this condition. Wh-words are non-anaphoric in nature so they cannot be interpreted as themes when they enter the discourse. On the other hand, once we assume that the particle *-wa* marks an item that is given, the ungrammaticality of (38b) can be explained straightforwardly. Since *-wa* marks information that is given, attaching *-wa* to wh-word such as *dare*, which is not given information, causes ungrammaticality.

In addition, a speech act analysis can provide a systematic basis for to explain some anecdotal claims about the usage of *-ga* and *-wa*. Recall the “old vs. new information” discussion above. Although it is conventionally believed that an NP that is new in the discourse should be marked with *-ga* initially, and that an NP with the same referent will be marked with *-wa* upon subsequent occurrences *-wa* can also mark new information as Hinds (1987) suggests. For example, the passage in (39) shows a *-wa* marked NP introduced into a narrative as new information.

- (39) Otoko-**wa** mati no hazure no tiisa na ie ni sunde ita.
 “There was a man (*-wa*) who lived in a small house on the edge of town.”

(Fiengo and McClure p.17)

Hinds notes the writer/speaker's use of *-wa* marked information for dramatic effect in order to draw the reader/hearer into the story, but this effect is a consequence of the speech act. The fact that the writer/speaker chooses to treat the item, *otoko* 'a man', that has not been previously mentioned as given, causes the dramatic effect.

5.4.3.4.1. *Speech acts as a key to explain -ga and -wa acquisition in children*

In previous sections, theories developed to address various properties of the particles *-ga* and *-wa* have been examined. In syntax, the status of *-ga* and *-wa* is not well-understood, and the particles have not been given a single theoretical account. In discourse (new and old information) frameworks, the available explanations remain anecdotal.

In contrast, Fiengo and McClure (2002) proposal based on Austin's speech act theory provides a cohesive explanation for the distribution of *-ga* and *-wa*. This suggests that speech act theory might play a significant role in understanding the acquisition of *-ga* and *-wa*. In particular, such a theory suggests a possible link between the two particles and common sentence types, such as statements, questions, requests, etc. It must be noted, of course, that in adult speech the link between sentence types and particle use is opaque; *-ga* and *-wa* both appear in statements, questions, requests, etc.

In the next section, I lay out a basic description of sentence types and speech acts in adult speech. I will then demonstrate that the situation is not what might be expected in the early speech of children. When children are first acquiring the particles *-ga* and *-wa*, it turns out that there is direct link between these two particles and certain sentence types.

5.4.3.4.2. Adult's sentence types and -ga and -wa

A speaker uses sentences to perform various speech acts, i.e., communicative activity. Searle (1969) describes speech acts the following way:

Speaking a language is performing speech acts, acts such as making statements, giving commands, asking questions, making promises, and so on; more abstractly, acts such as referring and predicating...[T]hese acts are in general made possible by and performed in accordance with certain rules for the use of linguistic elements (p.16).

That is, illocutionary acts can be defined as how the utterances are being understood.

One can utter different types of sentences. Some of the sentence types commonly found in adult speech are listed in Table 47 below.

Sentence Types	Sentence
Declarative	John has arrived.
Interrogative	Are you a student?
Imperative	Stop smoking!
Conditional	If we don't stop global warming, there's no future.

Table 47 Common Sentence Types

Some sentence types, such as interrogatives, typically have an associated illocutionary act (e.g., question), yet the association between sentence types and illocutionary acts is not one-to-one. For example, a declarative sentence (40) can be interpreted as any of a number of various types of illocutionary acts depending on the context.

(40) It's really hot.

The following Table 48 demonstrates the many types of speech acts that can be performed by the utterance of a single sentence.

Illocutionary acts	Context
Assertion	A: The thermostat must have been broken. It's really hot.
Request	A: (to a person near by a window) It's really hot. B: Sure, let me open the window.
Warning	A: (pointing to the pot on the oven) It's really hot. B: Oh, thanks.
Reply	A: (pointing at the pot on the oven) How is it? B: It's really hot.
Description	A: So, what's your new car like? B: It's really hot.
Denial	A: You're just saying that to skip the school. Let me touch your forehead. B: It's really hot.

Table 48 Illocutionary Acts

For instance, one may say “It’s really hot.” Here, the sentence is a simple declarative statement, yet the meaning is ambiguous, i.e., the intended meaning of the sentence can be a statement about weather conditions or a request to a nearby person to open the window. If the speaker intends to convey the latter meaning then, the illocutionary act performed is “request.”

As can be seen in Table 48, in English there is no direct link between a sentence type and a particular illocutionary act. This is also true in Japanese.

- (41) Hontooni atsui -yo.
Truthfully hot-emphasis
“It (is) really hot!”

Example (41) above, which is a translation of sentence (40), can be used to perform the same types of illocutionary acts that are listed in Table 48.

Furthermore, both *-ga* and *-wa* can appear in statements, questions, requests, etc. Let us look at some of the common illocutionary acts in Japanese listed in Table 49.

Illocutionary acts	Sentence
Statement	<p>John-ga kimashita. -NOM came "John has arrived."</p> <p>John-wa kimashita. -TOP came "Speaking of John, he has arrived."</p>
Question	<p>John-ga gakusei desu-ka. -NOM student copula question "Is John a student?"</p> <p>John-wa gakusei desu-ka. -TOP student copula question "Speaking of John, is he a student?"</p>
Request	<p>John-ga souji nante shinaidekudasai-yo. -NOM cleaning such as do not please -emphatic "Please John, don't do such a thing as cleaning!"</p> <p>John-wa souji nante shinaidekudasai-yo. -TOP cleaning such as do not please -emphatic "As for you, John, please don't do such a thing as cleaning!"</p>
Warning	<p>Sono inu-ga abunai. -NOM dangerous "That dog is in danger."</p> <p>Sono inu-wa abunai. -TOP dangerous "That dog dangerous."</p>
Apology	<p>Boku-ga warukatta. -NOM bad past "I was wrong."</p> <p>Boku-wa warukatta. -NOM bad apst "As for me, I was wrong."</p>

Table 49 No connection between *-ga* and *-wa* and Illocutionary Acts

As we see above, illocutionary acts can be expressed with a sentence containing *-wa* or *-ga* (where the choice of *-ga* versus *-wa* would reflect issues of direction of fit). Thus, clearly, there is no direct link between the particles *-ga* and *-wa* and illocutionary acts in adult Japanese speech.

5.4.3.4.3. Children's illocutionary acts and *-ga* and *-wa*

Adults control a wide variety of illocutionary acts, but it is plausible that young children possess only a subset of what adults have access to. In fact, children⁷⁷ do exhibit some commonly found illocutionary acts by the end of the age of 2;00 or so. The following examples are excerpts from the Aki corpus.

⁷⁷ Children's earliest questions are difficult to identify unambiguously since their earliest utterances usually consist of only single words or partial words. Cases that paired up an adult reply to a child's utterances were chosen as examples here.

Sentence types	Sentence
Statement	<p>MOM: kore wa ? This TOP "What is this?"</p> <p>AKI: Zi [: hitsuji] . Ji (child language, meaning sheep) "it's sheep."</p> <p>MOM: un , hitsuji . Yes sheep "(you're) right, (it's) sheep." (Aki 2;01.10)</p>
Question	<p>AKI: kore nan da ? This what copula "What is this?"</p> <p>SUZ: densha ? Train "(Is it) train?" (Aki 2;04.04)</p>
Request	<p>AKI: tsukutte ! Make -te form (please) "(please) make (it)!"</p> <p>SUZ: hai, tsukuru yo . Yes make let's emphatic "Ok, let's make it!" (Aki 2;3.0)</p>
Confirmation	<p>Mom: a , dampukaa ne . Oh, garbage truck confirmation "Oh, (it's a) garbage truck, isn't it?"</p> <p>AKI: (pointing to other picture) okki(i) . Large "(It's) big." (Aki 1;10.0)</p>

Table 50 Children's Illocutionary Acts

Aki successfully produces a statement, question, request, and a confirmation. Those utterances are either acknowledged by adults or produced appropriately in the context of

the situation. Thus, it would seem that the child knows and understands these basic illocutionary acts.

On the other hand, as one would expect, sophisticated illocutionary acts, such as warnings or suggestions, are not found in the early speech of children. The reason for this is simple. Recall, Newport (1977) and Newport, Gleitman, and Gleitman (1977) who report that the primary function of Motherese is to direct activity, ask about needs, match a referent and object, or request a well-practiced behavior. That is, the contexts of adult and child conversations are confined to those situations in the early stages of a child's life. Further, children's illocutionary acts are predominantly confined to responses to utterances produced by their primary caretakers. It is therefore not a surprise that making statements and asking questions are their primary illocutionary acts in the early stage of development (and that warnings and suggestions are absent).

Although to the best of my knowledge, there are no studies on infants' illocutionary acts in Japanese, Dore (1973) reports that infants learning English as their first language can indeed perform a subset of adult's illocutionary acts in the one-word stage. To support this hypothesis, he studied infants' earliest speech events, that is vocalizations used in a linguistically significant way, by videotaping the interactions of four pairs of an American English speaking mother and the child dyads. The children ranged from ten to fourteen months of age. The sessions lasted for 30 to 45 minutes per week. The videotapes were done over a six month period at a nursery school. The mother was instructed to interact with her child the way she does at home —by playing, feeding, etc. The videotapes were then phonetically transcribed in conjunctions with non-segmental features, such as falling/raising terminal contours, high/low pitch range, stress/unstressed syllables, for children, and transcribed into English orthography for the mothers.

By analyzing the children's utterances and the mothers' responses and the context, Dore revealed that during the children's one-word stage (the length of one stage in this study varies among the children from less than three months to more than five months), the children can actually produce a variety of illocutionary forces using a single word with non-segmental features. Dore refers to these illocutionary forces which are qualitatively different from adults' as "Primitive Speech Acts." Seven primitive speech acts that he observed were: 'imitating words', 'labeling items', 'protest', 'answering a question', 'calling someone', 'request-command', and 'greeting someone'. For example, when a child calls a person who is visible but some distance away, Dore postulates that the child accomplishes the speech act of 'calling someone', and when a child utters a word for an item while he is trying to reach it and his mother reacts by getting the item for him, 'request-command' is accomplished.

5.4.3.5. Children's data

In the previous section, I demonstrated that young children can perform a subset of adult's illocutionary acts. In adult speech, there is no direct link between *-ga* and *-wa* and illocutionary acts, but, given a theory like that of Fiengo and McClure (2002), the question remains as to whether there is or is not a link between *-ga* and *-wa* in children's speech. In order to investigate this, I collected data by running Perl programs on the corpora. First, I split the utterances in the original files into mothers' and children's files. I then extracted the lines that contain the particles *-ga* and *-wa* and created new files. Using a period and question mark at the end of each line as identifiers, the program further split the files to create files containing the particle *-ga* with a question at the end of the line, the particle *-ga* with a period at the end of the line, the particle *-wa* with a question mark, and the particle *-wa* with a period. In other words, the Pearl program

created eight files, four files for the mothers' utterances (files containing declarative and interrogative sentences with *-ga*, and declarative and interrogative sentences with *-wa*) and four files for the children's utterances (files containing declarative and interrogative sentences with *-ga*, and declarative and interrogative sentences with *-wa*).

Splitting one file into eight files

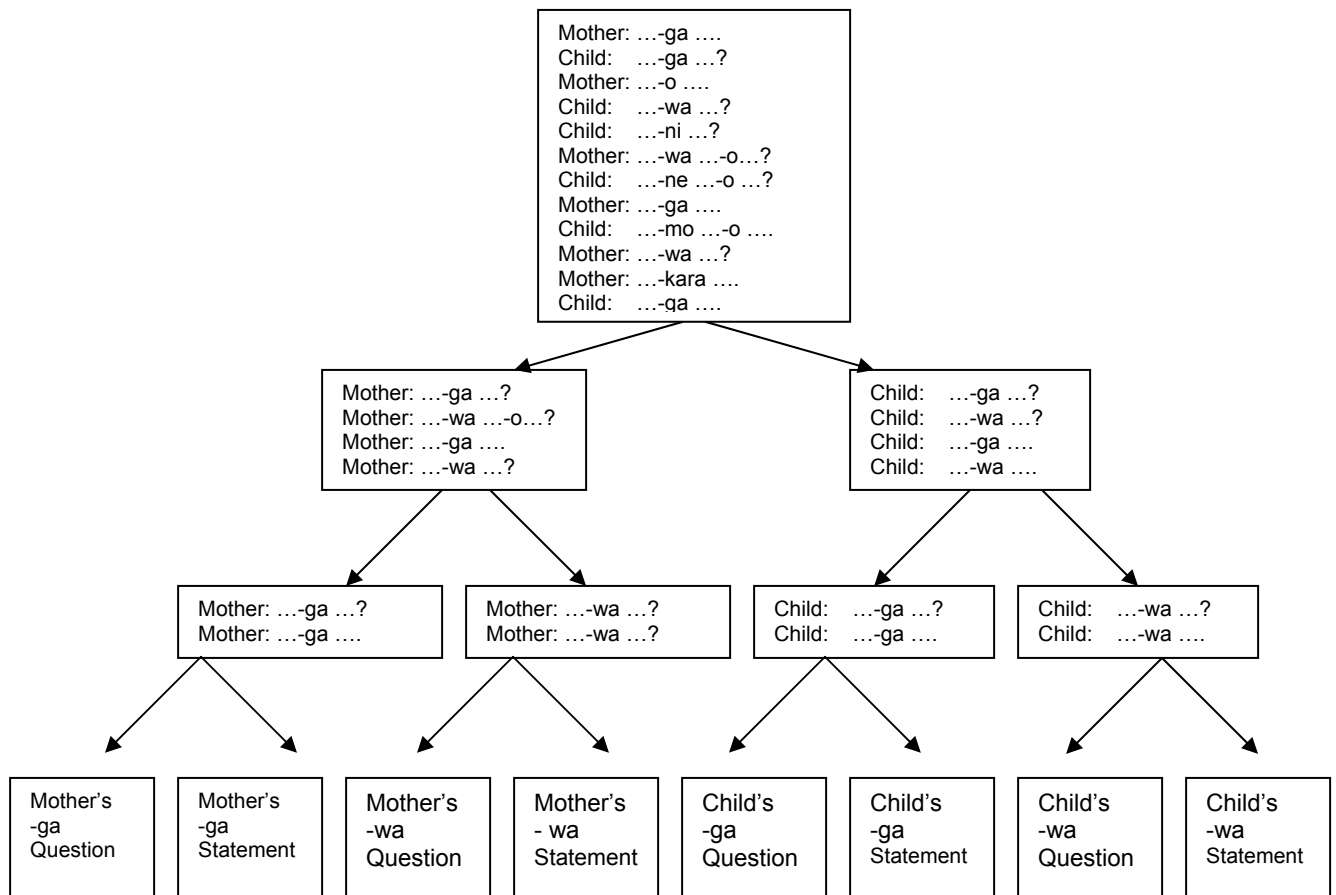


Figure 6 Splitting Files

In the end, the number of lines in each file was counted by the program and appended to a Microsoft Excel file.

5.4.3.5.1. Children's actual usage of -ga

The following charts illustrate the three children's (i.e. Aki, Ryo, and Tai's) usage of -ga in the two basic sentence types: statements and questions.

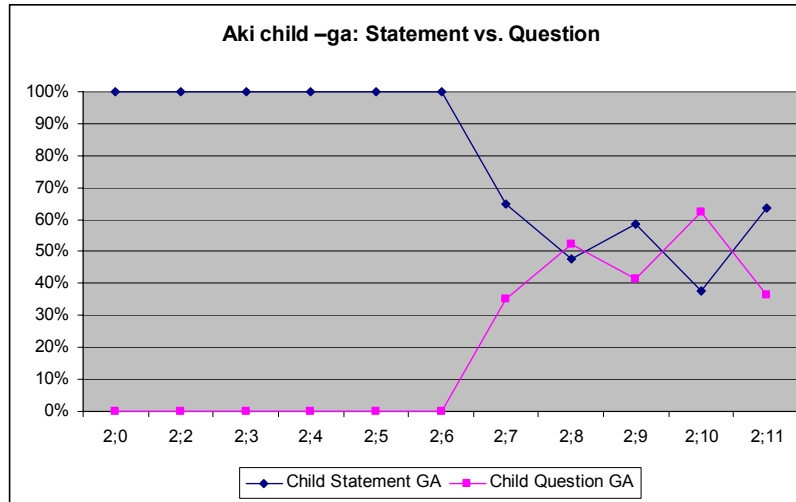
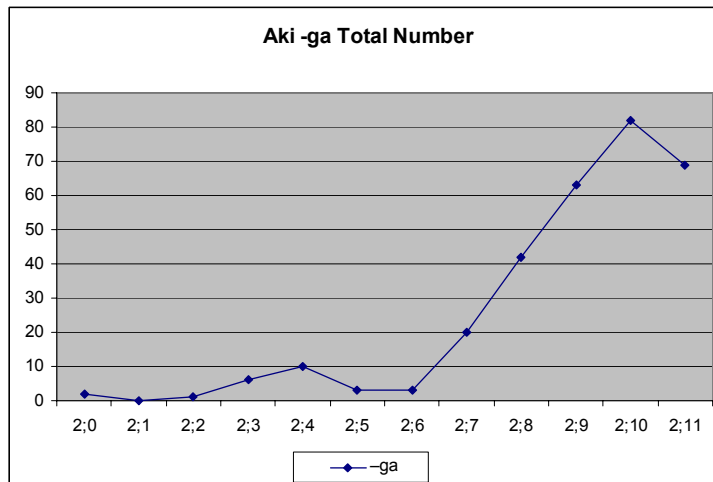


Chart 28 Aki's -ga: Statement vs. Question

Aki's first -ga appears at age 2;00.19. For the initial five months, -ga appears exclusively in statements, then -ga is used almost equally in statements and questions from age 2;8⁷⁸.

⁷⁸ Interestingly, the point in time that Aki's production of -ga increases significantly and the point in time that -ga loses its exclusive correlation with statement appear to coincide.



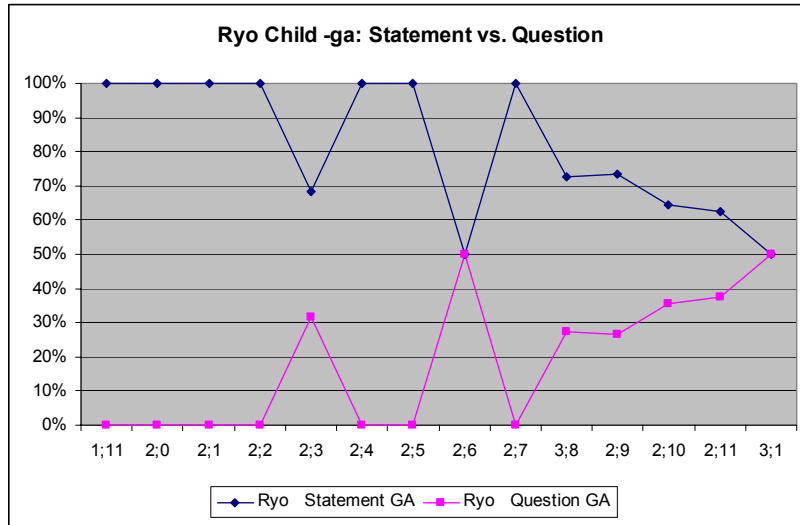


Chart 29 Ryo -ga: Statement vs. Question

Ryo's first -ga appears at age 1;11. For the initial three months, -ga is exclusively used for making statements. Gradually it is used for making both statements and questions by age 3;01.

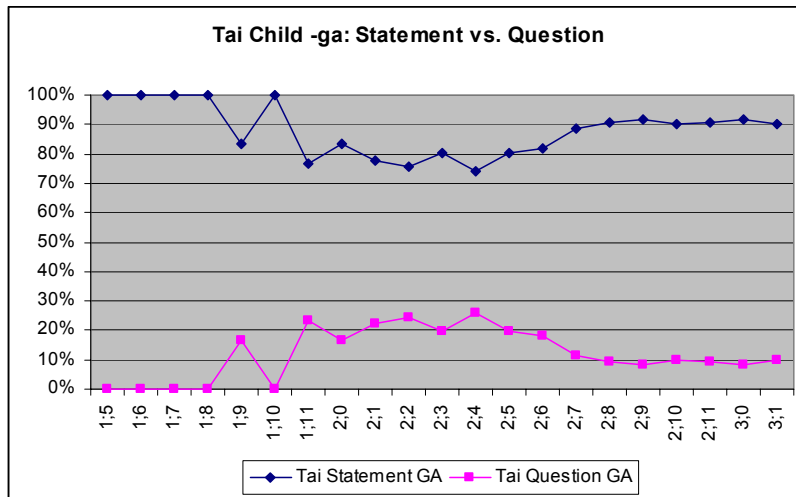


Chart 30 Tai's -ga: Statement vs. Question

Tai's first *-ga* appears at age 1;05.27. For the initial three months, *-ga* is exclusively used to make statements. Tai maintains a very strong preference for making statements with *-ga* throughout the entire data which ends at age 3;01.

In addition, when these children make statements, they use very similar verbs. The following tables show the counts of the three children's first verbs and adjectives that occur in combination with with *ga*-marked NP.

Aki's verb		2;00	2;02	2;03	2;04	2;05	2;06	2;07
	∅	2	1	3	5	3	4	14
<i>nai</i>	not-exist ⁷⁹ NEG (inanimate)			1	2			
<i>poi</i>	throw away (onomatopoeia)			1				
<i>deta</i>	exit past			2				
<i>aru</i>	exist (non-animate)				3			
<i>hokobu</i>	carry				1			
<i>konai</i>	come NEG						2	
<i>Shita</i>	do past						1	

Table 51 Aki's First Verbs and Adjectives

Ryo's verb		1;11	2;00	2;01	2;02	2;03	2;04	2;05
	∅	1	1		0	7	2	4
<i>ii</i>	good (Adj)		2		16	6	5	2
<i>atta</i>	exist PAST (non-animate)				1	2	1	2
<i>owatta</i>	end PAST				1			
<i>noritai</i>	want to ride				1			
<i>katta</i>	buy PAST				1			
<i>tooranai</i>	go through NEG					1		
<i>kowarete(i)ru</i>	break					1		

Table 52 Ryo's First Verbs and Adjectives

⁷⁹ Japanese has two verbs of existence: (i) the inanimate verb *aru* and (ii) the animate verb *iru*. The inanimate verb *aru* is not realized as a negated form (which would be *aranai*). Instead, affirmative *aru* is paired with an independent lexical entry *nai*, "to not exist."

to exist	polite affirm.	polite neg.	plain affirm.	polite neg.
inanimate	arimasu	arimasen	aru	nai
animate	imasu	imasen	iru	inai

Tai's verb		1;05	1;06	1;07	1;08	1;09	1;10	1;11
	∅	2	1	2	1	5	4	7
<i>inai</i>	exist NEG (animate)	1						
<i>ii</i>	good (Adj)		1				1	
<i>aite(i)ru</i>	being open			1				
<i>nai</i>	exist NEG (non-animate)					2		
<i>iku</i>	go					2		
<i>fuku</i>	blow					1		
<i>atta</i>	exist PAST (non-animate)					1		

Table 53 Tai's First Verbs and Adjectives

The very first verbs that appear commonly in all three children's data are variations (affirmative, negative, past tense, animate, and non-animate) of the verb "to exist," as shown in the tables above. The following sentences are examples of statements containing the particle *-ga*.

- (42) *Tai: Kabu -ga inai
 (beetle?) -NOM exist-neg
 "(The) beetle isn't here."

(Tai corpus 1;05.27)

- (43) *CHI: geegee -ga atta-mon
 (?) -NOM exist past -SFP
 "(The) ? was here."

(Ryo corpus 2;03.17)

- (44) *CHI: umi-ga aru-yo
 Ocean -NOM exist emphasis
 "(There is) ocean!"

(Aki corpus 2;03.12)

The type of illocutionary act expressed with *-ga* is assertion, more specifically assertion of existence.

5.4.3.5.1. *-ga* and speech acts

At the onset of acquisition, the particle *-ga* is exclusively used for making statements by all three children. More specifically, the first statements that the three children make all assertions about existence.

Tai's data show that he continues to associate making statements strongly with *-ga* throughout. On the other hand, Aki and Ryo's data show that exclusive correlation between *-ga* marking and statements starts to deteriorate, for Aki at age 2;7 and Ryo at age 2;6. This suggests that the children initially make an assumption linking the particle *-ga* exclusively with statements, particularly assertions about existence, in the early stages of acquisition.

5.4.3.5.2. *Children's -wa*

The following charts illustrate the three children's (i.e. Aki, Ryo, and Tai's) *-wa* usage in the basic sentence types: statement and question.

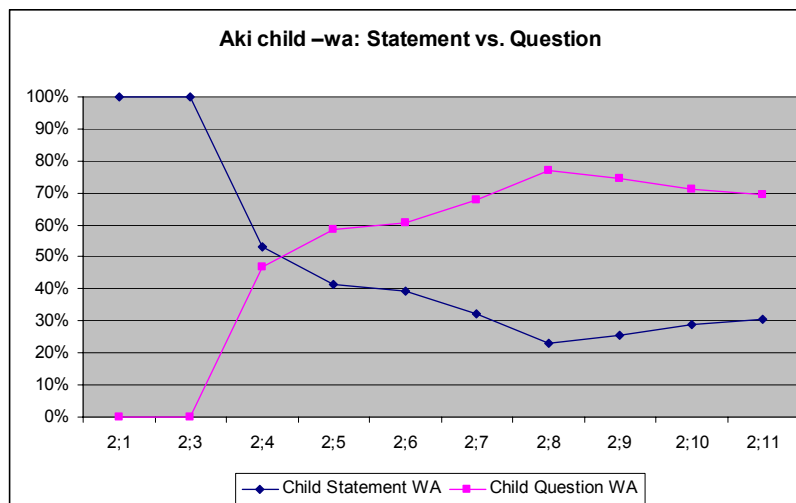


Chart 31 Aki *-wa*: Statement vs. Question

Aki's first *-wa* appears at age 2;017. For the first two months, *-wa* is exclusively used for statements, then afterwards, a majority of *-wa* usage is correlated with questions.

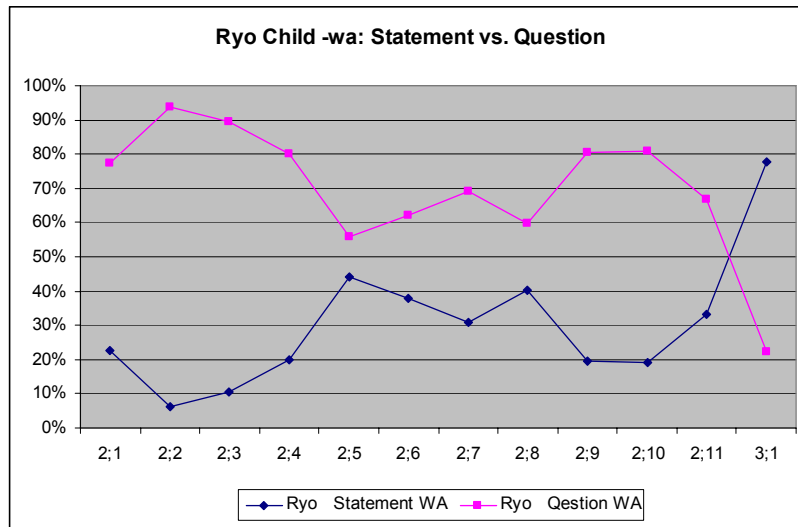


Chart 32 Ryo *-wa*: Statment vs. Question

Ryo's first *-wa* appears at age 2;01.04. For the first three months of *-wa* usage, Ryo exhibits a strong preference for forming questions, then the preference fluctuates for few months, and at age 3;00 his preference inverts to forming statements.

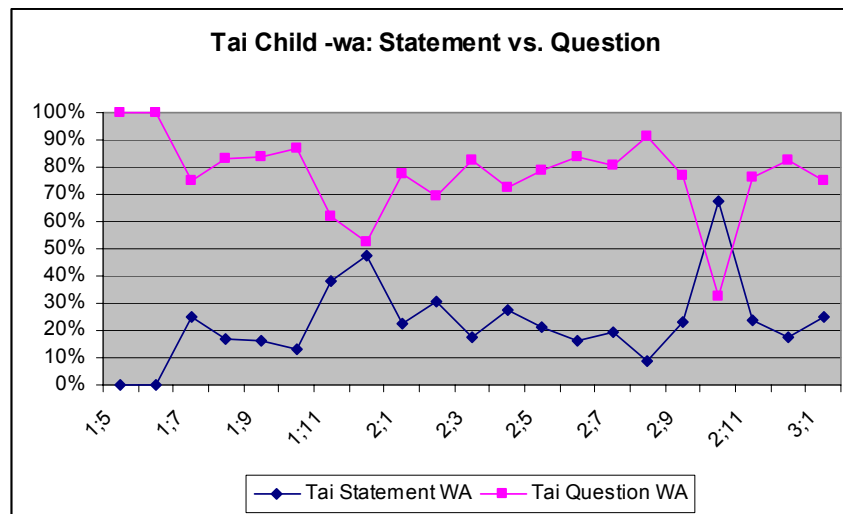


Chart 33 Tai *-wa*: Statement vs. Question

Tai's first *-wa* appears at age 1;05.27. For the first month, *-wa* is exclusively used to form questions and Tai maintains a strong preference for using *-wa* in questions (as opposed to statements) until near the end of the data, age 3;01.

5.4.3.5.3. *-wa* and speech acts

The three children's data show that the particle *-wa* is strongly associated with question formation. This result concurs with Clancy's (1986) report that *-wa* appears with rising intonation following nouns in a question⁸⁰. However, the link between *-wa* and questions is not as clear cut as that between *-ga* and statements. All three of Aki, Ryo, and Tai use *-wa* more frequently in forming questions. Tai is the only one to use *-wa* exclusively to form questions (for 1;5 and 1;6), although Ryo exhibits a strong preference for forming questions with *-wa* (77.3% at 2;1 and 93.9% at 2;2). On the other hand, Aki uses *-wa* to form statements exclusively at the onset of acquisition (between 2;1 and 2;3) before switching and making an association between *-wa* and questions.

The basic hypothesis is that children make an assumption to link the particle *-wa* with questions in the early stages of acquisition, but the link between *-wa* and questions is not as straightforward as the link between *-ga* and statements.

Let us review sentences containing *-wa* and their context to investigate the status of non-question *-wa*. The following sentences⁸¹ are child's utterances of *-wa* and the surrounding adults' utterances. The child's sentences containing *-wa* appear in different

⁸⁰ Recall as well that Clancy also confirms that particle *-wa* appears after the SFPs (including SFP *-ka* for questions).

⁸¹ Although it may seem that there is a strong correlation between particle *-wa* and deictic expressions, a survey of the entirety of all three corpora revealed a higher percentage of deictic expressions in questions than in statements in general. I therefore concluded that there is no direct relationship between Aki's usage of particle *-wa* and deictic expressions.

situations. For example, the sentence with *-wa* (line 762⁸²) appears as an answer to a question that was asked by an adult.

- (45) 761 *SUZ: kore-wa ?
This TOP
"What is this?"
- 762 *CHI: kore-wa nattoo
This -TOP fermented beans
"This (is) fermented beans."
- 763 *SUZ: kore-wa ?
This -TOP
"What is this?"
- 764 *CHI: kore-wa hampen
This -TOP fishcake
"This (is a) fishcake."

(Aki corpus 2;03.26)

In the sentences below, the child utters a sentence containing *-wa* (line 713) after a statement made by an adult.

- (46) 711 *CHI: kore go
This five
"This (is) five."
- 712 *AMO: nana
seven
"Seven."
- 713 *CHI: kore-wa -ne # ichi
This -TOP -femmining ending one
"This (is) one."
- 714 *AMO: NI[:two] da-yo
Two copula SFP
"This is two!"

(Aki corpus 2;04.04)

Below, the child utters a sentence containing *-wa* (line 982) after a statement made by the child himself.

- (47) 979 *AMO: chigau tte sore
Wrong -te(quotation) it
"It (is) wrong (I tell you)."
- 980 *AMO: tonneru
tunnel
"Tunnel."

⁸² The number preceding * indicates the line number.

- 981 *CHI: tonneru
tunnel
"Tunnel."
- 982 *CHI: senro-wa [//] tonneru da
Train-track-TOP tunnel copula
"(The) train-track is a Tunnel."

(From Aki corpus 2;04.04)

Finally, in the next example, the child utters a sentence containing *-wa* (line 255) in response to a question asked by an adult, but the child's utterance is not an answer to the question.

- (48) 254 *RMO: akanai-no @fp -_ ?
Open-neg -femminin ending
"(It) doesn't open?"
- 255 *CHI: kore-wa oneechan
This -TOP sister
"(Speaking of this) this (is) big sister."

(From Ryo corpus 2;02.09)

In all of these examples, the declarative utterances containing *-wa* seem to perform one particular function during this early stage of acquisition, i.e., they provide a description such as "X is Y." The initial noun establishes the identity of X, and the description of X is given by the predicate Y. "X is Y" is expressed by the following sentence in Japanese.

- (49) X-wa Y desu/da/Ø.
-TOP copula polite/ plain/omitted
"X is Y."

The initial NP-*wa* establishes the NP as the topic, followed by the description or comment about the topic NP. The copula verb or phonologically null copula follows at the end of the sentence. This pattern also occurs when *-wa* appears in questions, i.e.,

when *-wa* is used to ask questions⁸³ the sentence is asking for a description of the topic NP.

The earliest usage of *-wa* can be understood when *-wa* is thought of as being used to describe persons or things. Initially, Aki tends to associate *-wa* with descriptions in declarative sentences, whereas the other two children associate *-wa* with the questioning of descriptions. The children make an initial hypothesis to link particle *-ga* directly to statements, especially to assertions about existence or the lack of existence. At the same time, children make an initial hypothesis to link particle *-wa* to questions, although the hypothesis to link *-wa* and questions is not straightforward. Tai makes an absolute association between *-wa* and questions, and Ryo makes a strong but not exclusive association between *-wa* and questions, whereas Aki initially makes an exclusive association with statements which is reversed at age 2;04. However, further observation reveals that particle *-wa* usage during the early stages of acquisition is used to express descriptions, *X-wa Y desu/da/ø* (“X is Y”), in Aki’s data. The questions uttered by Ryo and Tai also fall into this pattern—Ryo and Tai are asking questions about descriptions.

Of course the children’s hypotheses linking *-ga* and *-wa* to particular illocutionary acts is ultimately an incorrect one. As they progress in their language development, those links will be severed. As children approach adult-like competence they must come to realize that there is in fact no direct connection between the particles *-ga* and *-wa* and

⁸³ Here are the examples from Tai’s first two months usage of *-wa* with questions.

188	*TAI:	kore-wa ?
639	*TAI:	kotchi-wa kotchi ?
839	*TAI:	kuchi[?]-wa ?
934	*TAI:	taishoo[]-wa ?
1048	*TAI:	a are-wa -_ ?
1090	*TAI:	suuchan-wa ?
172	*TAI:	doko-wa [*] ?
1165	*TAI:	kore-wa ?
1168	*TAI:	+wa ?
1172	*TAI:	kore-wa ?
684	*TAI:	kore-wa ?
1097	*TAI:	moo ikko-wa ?

any particular illocutionary act. Further, they must learn that they can express various speech acts using both *-ga* and *-wa*. As already discussed, there is evidence in the early acquisition data of particle *-wa* that indicates a breakdown in the one-to-one connection between *-wa* and questions. This is not surprising as there is a great deal of positive evidence that contradicts the initial hypothesis. Children hear a variety of sentence types that contain *-wa* directly from their mothers and indirectly in adult-to-adult speech. Moreover, the describing sentence (of the form *X wa Y desu* 'X is Y') has already been discussed as a particularly frequent type of sentence which mother's use with their children. Indeed, many occurrences can be found in the mothers' speech as well as in the indirect L1 source. The following table illustrates some examples from the corpora.

Sentence types	Examples from the corpora
Statement	*TMO: kore-wa # daiji da (Tai 1;06) this -Top important copula "This is important"
Question	*RMO: kore-wa dare-no ? (Tai 3;00) this -Top who -gen Ø "Who's is this?"
Request	*SUZ: odekake suru toki-wa booshi deshoo ? (Aki2;02) outing do when -Top hat copula subjunctive "When (you) go outside, (you) are (suppose to have a) hat (with you, put it on)."
Confirmation	*TMO: suuchan-ni -wa sore-na -no -ne (Tai 1;07) sachchan -to -Top that copula -female emph. -confirmation "That is for Sacchan, right?"
Refusal	*TMO: ii-yo kakka-wa (Tai 1;05) OK -emph mom -Top Ø "Mom (I) is OK (no thank you)!"
Denial	*RMO: kore-wa tete janai (Ryo 1;11) this -Top hand copula Neg "This is not (a) hand."
Command	*AMO: kashi-wa ato (Aki 2;03) sweets -Top later Ø "Sweets are later (do not eat the sweets right now)"
Protest	*SUZ: kore-wa dameda-yo (Aki 2;05) this -Top no god copula -emphasis "That's no good!"

Table 54 Adults' Various Sentence Types Using "X-wa Y desu"

In other words, children hear particle *-wa* in many sentence types conveying many different speech acts which should cause them to revise their incorrect hypothesis concerning *-wa* usage very early.

In addition, there is another reason that a revision of the hypothesis concerning *-wa* is easier. Since omission of the copula verb is allowed in casual speech in Japanese, it requires almost no effort to change a question with *-wa* to a statement with *-wa*. As long as a child can produce a description of the form *X-wa Y desu/da/Ø*, "X is Y," all that is needed is a change in intonation.

In contrast, revising the hypothesis developed for particle *-ga* requires much more work. In order to use *-ga* grammatically, children need to acquire further syntactic knowledge, i.e., they need to learn more verbs and *wh*-words, and they need to learn to respond to *wh*-questions. During the period covered by the corpora used as the basis of this study, none of the children had developed these abilities.

Chapter 6: Conclusion and Future Studies

6.1. Summary

When one begins the investigation of particles in Japanese, some theoretical issues immediately present themselves. First, particles actually contain heterogeneous elements which do not necessarily contribute to a cohesive morphological and syntactic generalization. Second, a lack of positive evidence that casual adult-to-adult speech contains, which presumably surrounds young L1 learners, poses many challenges to L1 acquisition. Further, the primary (child-directed) input that L1 learners are exposed to is typically characterized by shorter and simplified sentences which can be viewed as a possible hindrance to successful acquisition.

In this dissertation, I have investigated L1 acquisition of Japanese particles using longitudinal speech data of three Japanese children and their mothers (Miyata 2004a, 2004b, and 2004c, and MacWhinney 2000) and CHJ, adult-to-adult telephone conversation corpus, to answer the following four questions.

First, what is the morphological and syntactic status of Japanese particles? Through a systematic examination of distribution, host selection, and stacking patterns of particles, I was able to categorize particles into four different types although the exact morphological and syntactic status of Japanese particles still remains undetermined.

Second, how are adult-to-adult (indirect L1 source) speech and child-directed speech (primary L1 source) similar and how are they different? The analysis of particle frequencies of casual adult-to-adult speech and adult-to-child speech, both in MLU (m), and MLU (mora), reveals that there is no difference between the usage of particles though adult-to-adult speech contains frequent use of particles that enable the formation of longer/complex NPs and adjuncts hence making the adult-to-adult utterances longer.

Third, is there any specific order of particle acquisition? The analysis of the corpora of three children and their mothers unveiled a specific sequence of acquisition shared by all three children.

Lastly, is there a link between adult input and the order of particle acquisition? The sequence of particle acquisition emerges despite distinctly different language environments experienced by the three children and the frequency of adult speech directed at the children which does not indicate any linkage between children's particle acquisition and adult input.

6.1. Conclusion of the result

The examination of longitudinal speech data of three Japanese children and their mothers (op. cit.) reveals several different facts about the process of particle acquisition.

First, it is not the case that all particles are acquired at the same time. Further, there is a particular order to the emergence of particles that is shared by all three children. This order indicates that there are two stages to the process of acquisition. The particles that are acquired first are the ones that are associated with basic illocutionary acts (i.e. making statements, asking questions, etc.). We might say that the first state of acquisition is motivated by the fundamental driving force of language acquisition, the need to learn "how to talk." Then, as the lexical and syntactic complexity of possible expressions increases and as the children's cognitive development proceeds, additional particles that connect NPs and predicates in different ways (i.e. case markers and adjunct postpositions) appear. Importantly, throughout this process, the particles that children do use, they seem to use more or less without error. As was discussed in section 5.2, the particles that do appear are used with 99% accuracy.

Second, the analysis shows that all children begin to use particles at MLU (m) stage I and complete the acquisition of basic particles without failure, approximately by MLU (m) stage V, i.e. when their Mean Length of Utterance is about 3.00. This occurs in spite of differences in the primary input, differences in the language environment, and the many inconsistencies and missing information that characterize adult language (whether directed at children or at other adults). A secondary conclusion is that the emergence of the various particles is aligned with the children's MLU (m) development rather than with their chronological age, i.e., the age at which a particular child starts to use particles is not significant. Instead, the acquisition of particles begins once a child has an MLU (m) of one morpheme. The process is more or less complete by the time the child's morpheme length is 3.00. Amazingly, the time spent acquiring the system of particles is just ten months for Aki and Ryo. (Since Tai's earliest data contains particles it is uncertain how long it took him.)

Once it is understood that the sequence of particle acquisition in Japanese conforms to MLU (m) development, the pattern of emergence of the various particles falls into place. The acquisition sequence of the various particles is summarized in Table 55.

Acquisition sequence of various particles among three children with MLU (m) stages⁸⁴

	Stage I	Stage II	Stage III	Stage IV	Stage V
1. Particles associated with illocutionary acts	ne yo ka mon sa zo [SFPs]				
2. Mono-syllabic particles to connect NPs		wa			
3. Mono-syllabic conveying the function of NPs	mo to no				
4. Di-syllabic semantically complex particles		ga (Nom)	o (Acc)	ni (Dat)	[case markers]
		Various -ni -de		e	[other particles]
			kara (from) kara (reason)		dake shika

Table 55 Summary of Acquisition Sequence

At MLU stage I, the very first particles, i.e., the basic Sentence Final Particles (SFPs), appear in children’s speech. SFPs attach to the end of a sentence to convey different illocutionary meaning. In particular, *-ne* (asking for confirmation) and *-yo* (emphatic) appear first among all three children; *-ka* (questions) emerges shortly thereafter (presumably because the overt question marker *-ka* is only optionally required to form a question, i.e., rising intonation can be used to form a question as well). A review of the actual occurrence of *-ka* and *-yo* in the data of all three children shows that the two particles are used correctly. The particle *-ka* occurred only in question usages and particle *-yo* occurred only with statements or requests. This demonstrates that children know and can distinguish the basic sentence types, statements and questions,

⁸⁴ See the detailed descriptions of the MLU (m) stages in section 4.3.3.7, Table 38.

at a very early stage of their first language acquisition. Given the link between intonation and illocutionary acts which is familiar from the L1 acquisition of a language such as English (Dore 1973), the emergence of SFPs should not really be surprise; in Japanese, the stress and intonation are simply realized overtly as SFPs. Subtypes of the emphatic, confirmation, and question SFPs, such as *-no*, *-mon*, and *-zo*, appear at later MLU (m) stages, between stage III and V, with individual variation.

Additionally at MLU (m) stage I, in order to make the transition from a single-morphemic state to a multi-morphemic state, we see the emergence of mono-syllabic particles that connect or modify NPs, such as *-to* (and), *-mo* (also), and *-no* (nominalization). These particles augment the internal structure of NPs. They do not yet entail increased complexity in the structure of the predicate, i.e. they do not define additional possible relationships between a predicate and its arguments or adjuncts.

Towards the end of this transitional stage, two types of mono-syllabic particles, case markers and other particles (which mark the functions of various adjunct NPs), start to appear. The nominative *-ga* is the first case marker to emerge, and as the child's syntax becomes more complex the accusative marker *-o* and the dative marker *-ni* appear. Necessarily, *-o* and *-ni* appear at a later MLU (m) stage because direct and indirect objects must first become available as a result of increased cognitive capacity before they can appear in children's utterances. Mono-syllabic particles which indicate the various (adjunct) functions of an NP, such as the various *-ni* (adverbial ending, physical goal, physical location, conceptual goal, time expression, and idiomatic expression) and *-de*, also emerge at this time. With respect to all particles, a general trend was discovered. Children begin to use particles with meanings that are conceptually concrete, such as physical location *-ni* and *-de* which attaches to an NP denoting location of an action. They then proceed to use the particles that are more conceptually abstract in meaning.

At the end of MLU (m) stage II or at the beginning of stage III, bi-syllabic particles, such as 'from-*kara*', 'reason-*kara*', and *-made*, begin to emerge. Again, the general trend of bi-syllabic particle emergence is that concrete usages appear before conceptual usages. So, particles such 'from-*kara*' and *-made* (until) which have concrete uses appear before a particle such as *-shika* which is semantically complex and usually translated as 'only'. Even for a single particle such as *-kara* which has both concrete and abstract usages (*-kara* can mark both a source location and a reason), acquisition proceeds from the concrete to the abstract. In the case of *-kara*, it turns out that the order of emergence has little or nothing to do with the primary input (since the abstract use of *-kara* is much more common in adult speech).

Finally, particle acquisition is complete at MLU (m) stage IV (for Aki and Ryo) or V (for Tai). The final particles to emerge include bi-syllabic particles such as *-dake*, *-shika*, and *-demo*. Those particles are semantically complex, and they can be used only when there is a complete sentence.

One puzzle that appeared in this developmental picture is that the particles *-wa* and *-ga* emerge at more or less the same time. Particle *-wa*, in particular, does not seem to fit very well into the acquisition sequence described above. In Chapter 5, however, I argued that if we adopt Fiengo and McClure's (2002) application of Austin's (1953) speech act theory, where *-ga* and *-wa* are viewed as pragmatic "direction of fit" indicators, the acquisition of *-ga* and *-wa* does in fact fit into the overall developmental picture. According to Fiengo and McClure, the functions of *-ga* and *-wa* are defined in terms of the pragmatics of how sentences are used. As such, they are associated with particular illocutionary acts. It is therefore not a surprise that *-ga* and *-wa*, like Sentence Final Particles which are also associated with illocutionary acts, are acquired early in the acquisition process.

The assumption that *-ga* and *-wa* are understood in terms of illocutionary acts sheds light on the more or less simultaneous acquisition of *-ga* and *-wa*. The hypothesis is strengthened by the additional observation that, at the earliest stages, children use *-ga* exclusively with statements and use *-wa* a majority of the time with questions. In the early stages of language acquisition, *-ga* and *-wa* are directly linked to the basic sentence types that children know: statements and questions (It's clear that they have acquired these two sentence types since the data indicates that they know how to use SFPs, such as *-ka* and *-yo*, accurately at an early age). That is, children initially learn *-ga* and *-wa* as indicators of basic illocutionary acts. Of course, the children's hypothesis is inaccurate because *-ga* and *-wa* are not linked to basic illocutionary acts in adult speech; in adult speech *-ga* and *-wa* are "direction of fit" indicators. This error does not, however, lead to errors of overgeneralization. In adult speech, the question of direction of fit applies to both statements and questions. As such, the children's hypothesis is inaccurate not because it is overly general, but because it is too narrow. To correct their hypothesis, the children must learn that *-ga* and *-wa* are "direction of fit" indicators and that direction of fit applies to both statements and questions.

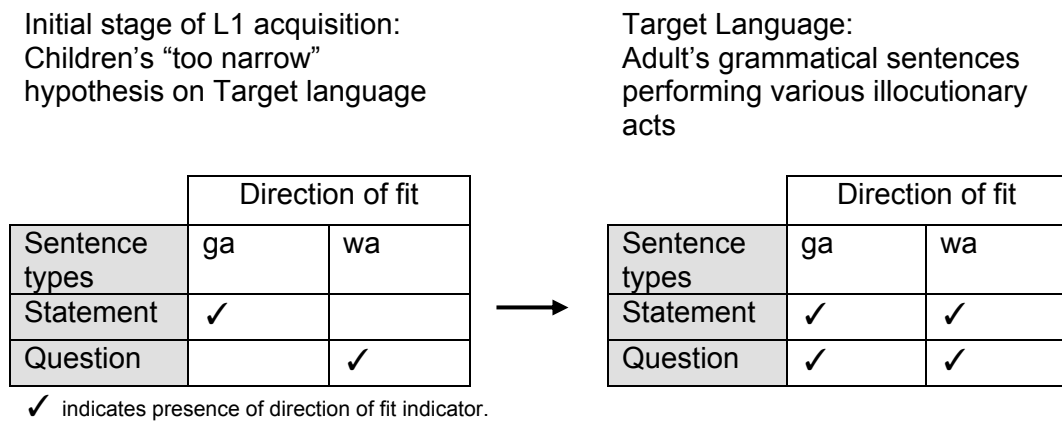


Figure 7 Children's narrow hypothesis vs. adult speech

Specifically, then, children make an initial hypothesis to link particle *-ga* directly to the formation of statements, especially to assertions about existence or the lack of existence. The exclusive linkage between *-ga* and statements persists even to the end of the available data (age 3;00), yet this exclusivity must eventually deteriorate as the children's syntactic complexity matures since there is no such link in adult speech.

At the same time, children make a hypothesis to link particle *-wa* to questions about descriptions. These are usually expressed by the sentence pattern of *X-wa Y desu/da/ Ø* 'X is Y'. However, the link between *-wa* and questions is not as strong as the link between *-ga* and statements. Reviewing the data from the three children, Tai makes an absolute association between *-wa* and questions, and Ryo makes a strong but not exclusive association between *-wa* and questions, whereas Aki initially makes an exclusive association with statements which is reversed to questions at age 2;04. Contrary to the link between *-ga* and statements, the link between *-wa* and questions deteriorates quickly. There are two reasons for this. First, revising the hypothesis linking *-wa* to questions does not require much effort because of the *X-wa Y desu/da/Ø* sentence pattern. That is, a sentence of the form *X-wa Y desu/da/ Ø* can be understood as a statement or as a question with nothing more than a change in intonation. Unlike the formation of questions with *-ga*, forming statements with *-wa* does not require further lexical and syntactic development. Second, children hear a great deal of positive evidence that contradicts their initial hypothesis from mothers and other adults, i.e., if the child is listening at all, there will be many instances of *-wa* being used in statements. Since *-wa* is a particle that is associated with pragmatics and does not have a purely syntactic role (contra *-ga* which serves additionally as the nominative maker), the hypothesis revision can be influenced by adult input. This should not be a surprise since the ability to speak and communicate appropriately within a language or a community can be only learned with experience.

However, the children's data repeatedly show that children do not simply mimic the particle usage of adults while acquiring particles. Some examples follow: (i) the inaccurate hypothesis of *-ga* and *-wa* mentioned above is independent from adult speech, (ii) children learn the concrete meanings of particles first when it comes to ambiguous particles, such as 'from *-kara*' and 'physical location *-ni*', despite the higher frequencies of abstract usages in the mothers' and adult-to-adult speech, and (iii) if children first acquire the particles they hear the most frequently then, the particle *-no* ought to be the first one that they use since the particle *-no* is the one most frequently used by both mothers and in adult-to-adult speech (see Table 29). In spite of this, instead of *-no*, all three children start using the SFP *-ne* first. Moreover, if children simply imitated frequency of *-no* in their mother's speech, one might speculate that children would use *-no* to connect not only NPs but also adjectives and verbs (ungrammatically) from the early state of MLU (m) stage I; such grammatical mistakes are commonly found in adult students who are learning Japanese as a second language. These examples of children producing particular elements of grammar in spite of the nature of the input cannot occur by chance – they must be driven by innate grammatical machinery that operates independently of the statistical patterns that exist in the linguistic environment.

6.2. Further study

There are of course many questions that remain unanswered. Perhaps most importantly it will be necessary to study languages besides Japanese that have grammatical illocutionary act markers, such as SFP *-ka*, *-yo*, and *-ne*, to determine if those illocutionary act markers exhibit a cross-linguistic pattern in terms of emerging

very early in the L1 acquisition process. Is it the case that children “learn to talk” before they learn the rules of syntax that allow syntactic complexity? Languages such as Korean, Chinese, and Turkish may be a good starting point.

Secondly, the morphological and syntactic status of the four types of particles discussed in this thesis is unsettled. More investigation is necessary in order to relate the language acquisition data as presented in this thesis to the status of these particles in current linguistic theory.

Lastly, although the research presented here (among others’ research) shows that when children are at age 3;00 the complexity of their syntax approaches that of their mothers’ (the average of MLU (m) in children is 3.35 vs. 3.75 for their mothers), there is still a gap between the MLU (m) of children and the MLU (m) of unscripted adult-to-adult conversation (the average of MLU (m) of the CHJ corpus is 7.39). The gap between age 3;00 and real adulthood remains to be studied. Although I hope that I have been able to shed some light on how a child progresses towards adult language competence, there is still much more work that needs to be done.

Appendix A: JMOR Morpheme Codes

形態素コード	英訳	例	コード化された例
ADV	Adverbial	美味しく	adjjoishi-ADV
ALT	Alternative	飲んだり 食べたり 美味しくかったり	v:c nom-ALT v:v tabe-ALT adjjoishi-ALT
CAUS	Causative	飲ませる 食べさせる	v:c nom-CAUS-PRES v:v tabe-CAUS-PRES
CAUS:contr	Contracted Causative	飲ました 食べさした	v:c nom-CAUS:contr-PAST v:v tabe-CAUS:contr-PAST
COMPL	Completive	飲んじゃった 食べちゃった	v:c nom-COMPL-PAST v:v tabe-COMPL-PAST
CONC	Concessive	飲んだって 食べたって かわいくたって	v:c nom-CONC v:v tabe-CONC adjkawai-CONC
COND:ba	"reba" Conditional	飲めば 食べれば かわいければ	v:c nom-COND:ba v:v tabe-COND:ba adjkawai-COND:ba
COND:tara	"tara" Conditional	飲んだら 食べたら かわいかったら	v:c nom-COND:tara v:v tabe-COND:tara adjkawai-COND:tara

CONN	Connective	飲んで 食べて かわいくて	v:c nom-CONN v:v tabe-CONN adj kawai-CONN
CONN&wa	"te wa" Connective	飲んじゃ 食べちゃ かわいくちゃ	v:c nom-CONN&wa v:v tabe-CONN&wa adj kawai-CONN&wa
DESID	Desiderative	飲みたい 食べたい	v:c nom-DESID-PRES v:v tabe-DESID-PRES
IMP	Plain Imperative	飲め 食べろ	v:c nom-IMP v:v tabe-IMP
IMP:te	"te" Imperative	飲んで 食べて	v:c nom-IMP:te v:v tabe-IMP:te
INTENT	Intentive	飲もう 食べよう	v:c nom-INTENT v:v tabe-INTENT
NEG	Negation	飲まない 食べない かわいくない	v:c nom-NEG-PRES v:v tabe-NEG-PRES adj kawai-NEG-PRES
NEG:n	"n" Negation	飲まん 食べん	v:c nom-NEG:n&PRES v:v tabe-NEG:n&PRES
NEG:zu	"zu" Negation	飲まず 食べず	v:c nom-NEG:zu&PRES v:v tabe-NEG:zu&PRES

OBJVZ	Objectivizer	飲しがる 飲みたがる 食べたがる	adj hoshi-OBJVZ-PRES v:c nom-DESID-OBJVZ-PRES v:v tabe-DESID-OBJVZ-PRES
OBL	Obligation	飲まなきゃ 食べなきゃ	v:c nom-NEG&OBL v:v tabe-NEG&OBL
PASS	Passive	飲まれる 食べられる	v:c nom-PASS-PRES v:v tabe-PASS-PRES
PAST	Past	飲んだ 食べた おいしかった	v:c nom-PAST v:v tabe-PAST adj oishi-PAST
POL	Polite Form	飲みます 食べます です おいしいです	v:c nom-POL-PRES v:v tabe-POL-PRES v:cop da&POL-PRES adj oishi-PRES smod desu&POL
POT	Potential	飲める 食べられる	v:c nom-POT-PRES v:v tabe-POT-PRES
POT:contr	Contracted Potential	食べれる	v:v tabe-POT:contr-PRES
PRES	Present	飲む 食べる かわいい	v:c nom-PRES v:v tabe-PRES adj kawai-PRES
SGER	Semi-Gerund	飲み 食べ	v:c nom-SGER v:v tabe-SGER

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