Developing sensitivity to the sources of information: Early use of the Japanese quotative particles *tte* and *to* in mother–child conversation

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Abstract

The ability of infants and toddlers to imitate words they hear promotes early word learning. Their imitation of words gradually grows into proper quotation of words and utterances, in which the original source of the utterance is formally acknowledged. Little is known, however, about the development of children's ability to quote a variety of linguistic inputs. On the basis of previous findings in theory-of-mind research and cognitive pragmatics, we adopted the following working hypotheses: children will (a) quote onomatopoeia and words earlier and more frequently than utterances; (b) first quote utterances concerning desires and emotions and later quote utterances expressing thoughts; and (c) base early quotations on resemblance in form rather than resemblance in meaning. These hypotheses were tested in a study of Japanese quotative particles in recorded conversations between a mother and her child. The data are intensive and longitudinal, and detailed analyses of their conversational content generally support the hypotheses, with one important difference. Contrary to our first hypothesis, the child quoted utterances as often as onomatopoeia and words, the majority of which were imagined utterances attributed to the child's non-human companions.
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1. Introduction

In Japanese, as in any other language, quotation involves the use of speech verbs equivalent to English *say*, *speak*, *mention*, *tell*, etc. However, particularly in conversational Japanese, the most frequently used marker of quotation is the sentence-final particle *tte*. This marker, often called the quotative or hearsay particle, is used to quote utterances, words, and onomatopoeia in the absence of explicit speech verbs. Frequent use of this particle in conversation has been identified as one of the unique characteristics of Japanese verbal (as opposed to written) communication style (Kamio, 1994, 1995; Ishida, 2006; Mushin, 2001; Ohta, 1991).

What is the origin of this unique characteristic of Japanese speech style? In this paper, we suggest some possible answers by looking at the use of the quotative/hearsay particle *tte* in mother–child conversation. So far, little is known about exactly how young Japanese children begin to use the particle *tte*. Shirai et al. (2000) reported on when four Japanese children first started using the sentence-final hearsay particle. The first productive use of the sentence-final hearsay particle appears later than some other particles such as *yo* (marking certainty) and *ne* (marking empathy), and varies between 1 year 9 months and 2 years 4 months, which roughly coincides with the first productive use of the particle

kana (marking uncertainty). Given that children's vocabulary dramatically increases around the second birthday, these sentence-final particles appear to be acquired relatively early in a child's overall vocabulary development.

For the comprehension side of the story, Matsui et al. (2006) report that by six years of age, Japanese children show adult-like understanding of *tte* but they comprehend *yo* (certainty) and *kana* (uncertainty) by age three. According to Matsui et al., the lag may be explained by young children's difficulty in understanding the concept of sources of information, which is necessarily associated with the meaning of the hearsay particle. To understand what is communicated by the hearsay particle *tte*, one must minimally understand the qualitative difference between direct and indirect information.

Understanding the concept of source of information is closely related to children's understanding of quotation in general. From a cognitive point of view, the act of quoting itself, regardless of the linguistic forms involved, is based on complex psychological processes. To start with, one has to remember what someone else said. In the case of self-quotation, one needs to remember one's own past speech. To quote utterances also requires an ability to mentally attribute utterances or thoughts to others or to a past self. We believe that children's understanding of the concept of source is essential: the ability to mentally attribute an utterance or thought to someone else or to oneself requires metarepresentational ability (Perner, 1991; Sperber, 2000), which continues to develop gradually until middle childhood. This metarepresentational ability is an essential property of one's ''theory of mind,'' enabling one to be aware of, and to remember, sources of information (Fitneva and Matsui, 2009). In addition, as quotation is rarely an exact reproduction of the original and typically involves paraphrases or partial uses of the original, one needs to know how to paraphrase, or, more fundamentally, how to extract the gist of the original (Wilson, 2000).

Currently, we do not know which of those basic prerequisites for quotation are already present in infants and toddlers, which ones develop during the preschool years, and which ones mature continuously during the school period. In this study, therefore, our aim is twofold. As a starting point, we propose a working model of early quotations in toddlers (ages two to three) based on findings from theory-of-mind research and cognitive pragmatics. Second, we will test the working model by analyzing a corpus of intensive and longitudinal speech data in actual mother–child conversation, focusing on two time points: six weeks from the child's second birthday and six weeks from her third birthday.

1.1. Japanese quotative particles tte and to

Previous studies of the quotative/hearsay particle (e.g., Itani, 1998) have typically distinguished between *tte* used in sentence-final position (as in (1)) and that in sentence-medial position (as in (2)), and have suggested that the former functions as a hearsay particle and the latter as a complementizer, in the same manner as the quotative particle *to* in (3) is regarded as a complementizer:

(1)   Ashita   hareru   *tte*.
        tomorrow will-be-fine QP[1]
        'It will be fine tomorrow, I heard.'

(2)   Ashita   hareru   *tte* itteta yo.
        tomorrow will-be-fine QP said FP
        '(The weather forecaster) said that it would be fine tomorrow.'

(3)   Ashita   hareru   *to* itteta yo.
        Tomorrow will-be-fine QP said FP
        '(The weather forecaster) said that it would be fine tomorrow.'

At the same time, however, a strong connection between the two uses has often been suggested. For example, Mushin (2001) claims that ''the evidential functions of sentence-final *tte* are clearly related to its non-sentence-final functions as a quotation marker'' (p. 1370). Furthermore, Suzuki (1998) points out that among a variety of Japanese complementizers, including *no* and *koto*, *tte* is typically chosen by the speaker when the information is hearsay and the speaker feels uncertain about the truth of the information. Thus, it is reasonable to assume that an understanding of source of information is related to both sentence-medial and sentence-final uses of *tte*.

In this paper, we will therefore include both sentence-final and sentence-medial use of *tte* in our analyses and treat all uses of the particle as quotative, that is, attributing information to someone other than the current self. This approach

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[1] The following abbreviations are used in the literal glosses: CON – ''condition,'' COP – ''copula,'' DIM –''diminutive,'' DM – ''discourse marker,'' FP – ''final particle,'' GEN – ''genitive,'' INT – ''interjection,'' LOC – ''locative,'' NM – ''nominalizer,'' OB – ''object,'' QP – ''quotative particle,'' REQ – ''request form,'' SB – ''subject marker,'' TG – ''tag question,'' TP- ''topic marker''.

seems to us to be the most effective way to capture the changes in a child's use of the particle across different developmental phases. In addition, our analyses include instances of *tte* used to mention onomatopoeia and words/ phrases. For reasons to be discussed later, early use of the particle to quote onomatopoeia and words/phrases is considered to be a crucial first step in linking infants and toddlers' ability to recognize and express a variety of sources of information. Separate functions such as topic marking (Miura, 1974) and redefining (Niwa, 1994) have also been proposed for the use of *tte* to quote words/phrases. In this paper, these seemingly disparate functions of the particle *tte* will be captured by the classification of the items that precede the particle. We speculate that the various usages of the quotative particle share a single core meaning. Identifying the precise core meaning of the quotative particle is beyond the scope of this paper, but concepts such as psychological distancing (Kamio, 1994; Suzuki, 1998), evidentiality (Li, 1986), or epistemic stance (Mushin, 2001) are useful approximations for understanding what is encoded by the particle.

In addition, we will compare and contrast the use of quotative particle *tte* with the particle *to* in this study. To that end, we take as our working hypothesis that both *tte* and *to* are quotative particles that form parts of adverbial phrases, following Shibatani (1989) and Fujita (1988). This may be a controversial approach, given that some researchers claim that the quotative particle *to* is a part of a noun phrase or nominal clause embedded in a verb phrase and headed by a verb of quotation, for example, *iu* 'say, tell, go' or of mental state, for example, *omou* 'think' (e.g., Okutsu, 1970). Frequently, however, when Japanese quotative particles are used in sentence-medial position, regardless of the type of linguistic items quoted, they are used without the presence of any explicit verb of quotation or mental state, as in (4) below. Furthermore, the structure of such utterances is rather similar to the structure in which the quotative particle *to* is used to quote onomatopoeia, as in (5):

(4)   Mariko ga sayonara *to*   doa o   shimeta.
       Mariko SB good-bye QP door OB closed
       'Mariko closed the door, saying good-bye.'

(5)   Mariko ga batan   *to* doa o   shimeta.
       Mariko SB [onomatopoeia of slamming] QP door OB closed
       'Mariko slammed the door.'

In such cases, it is less problematic to analyze the particle as a part of an adverbial phrase than as a part of a noun phrase embedded in the verb phrase. It has also been suggested that when sentence-medial quotative particles are used without the presence of an explicit verb of quotation or of mental state, as in (4), the presence of the implicit counterpart is nonetheless implied (Kamada, 2000). The goal of the current study is to examine all uses of the two particles in actual mother–child conversation, including the cases where the particles are used without a verb of quotation or mental state accompanying it. We believe that treating them equally as a part of an adverbial phrase seems a good starting point.

It is worth mentioning as well that in Japanese conversations, the particle *to* is also used in sentence-final position, the behavior of which is reminiscent of the hearsay-particle *tte*:

(6)   Ashita   hareru   *to*.
       tomorrow will-be-fine QP
       'It will be fine tomorrow, I heard.'

Hayashi (1997) suggests that the particle *to* is used in sentence-final position relatively frequently in adult conversations when the speaker regards the information as hearsay and tries to distance himself from it. Frequent use of *to* in sentence-final position may indicate that the quotative particles *to* and *tte* share many more functions than previously expected. Currently, little is known about the sentence-final use of the particle *to*, and it is our hope that examination of both sentence-medial and sentence-final uses of the particle *to* in the mother–child conversations will help to clarify its functions.

1.2. Developing understanding of sources of information

From the perspective of development, the following two cognitive capabilities involved in quotation are closely related to the development of a theory of mind: (a) psychological understanding of the concept of source; and (b) attribution of the current utterance (i.e., the quotation) to the source of the utterance (i.e., the quoted). Existing studies on theory of mind development indicate that children become capable of attributing a variety of mental states to the speaker at around 4 years of age, which depends on their first-order metarepresentational ability (e.g., Perner, 1991). However, children's understanding of the speaker's knowledge state develops earlier, between two and three years of age. Prior to that stage, two-year-olds are known to show some understanding of desire, emotion, and pretense (Harris, 1989; Leslie, 1987).

To understand the cognitive bases of early quotations from two- to three-year-olds, in this section, we will briefly discuss children's understanding of desire and pretense, as well as their understanding of source of knowledge.

In contrast to understanding of belief, understanding of desire is much simpler in that the target of the desire and the cause of certain emotional reactions belong to the real world and thus do not require a metarepresentational ability to think about the mental world, which is necessary to understand the content of someone else's belief. Moreover, early understanding of desire and emotions appears to be connected to children's knowledge of particular situations in the real world—as, for instance, children know that receiving a birthday present is an occasion for happiness. Children's understanding of desire and emotions seems to play an important role as a psychological basis for their later understanding of belief. For example, it was shown that two- to three-year-olds' family conversations about feelings were associated with children's later false belief understanding (Dunn et al., 1991).

One of the important contexts in which young children talk about others' feelings and desires is in pretend play, which is also considered to be an early manifestation of young children's inchoate understanding of their mental world (Harris, 1989; Leslie, 1987). For example, Youngdale and Dunn (1995) found that a role-oriented pretend play at 33 months correlated with understanding false belief seven months later. Astington and Jenkins (1995) also found a strong correlation between frequency of children's joint proposals within the context of pretend play and comprehension of false belief. More recently, in a study of three- and four-year-olds, Nielsen and Dissanayake (2000) found that children's tendency to attribute animate properties to a doll, for example, by talking for it or to it, correlated with belief understanding.

These findings indicate that two-year-olds' quotation may be based on their inchoate ability to attribute certain mental states such as desires and emotions, which is most effectively fostered through conversation about family members and peers, and in the context of pretend play. It seems reasonable for us to hypothesize, therefore, that typical two-year-olds are more likely to quote utterances concerning the desires and emotions of their conversational or play partners than to quote utterances expressing the speaker's belief state.

Now if very young children do not understand the concept of belief and yet are able to quote, how does an awareness of source of information, which is closely connected to the use of quotation in an adult sense, become part of their act of quotation? It is now widely agreed that children's basic understanding of how knowledge is formed (e.g., by seeing or by hearing from someone else) and where it comes from (e.g., from the teacher or from the TV) develops between three and six years of age (O'Neill and Gopnik, 1991; Pillow, 1989; Pratt and Bryant, 1990). Three-year-olds are known to be aware of the connection between knowledge and perceptual experience, for example that "seeing is knowing," but until about six years of age, they cannot verbally explain how they come to know something. It has been suggested that children's understanding of evidential expressions, including the Japanese quotative particle *tte*, closely relates to their conceptual understanding of direct and indirect sources of knowledge (Li, 1986; Matsui and Fitneva, 2009). The results of the study reported in Matsui et al. (2006) confirm the tendency: until about six years of age, Japanese children's comprehension of the quotative particle is rather fragile.

The main strand of source monitoring research focuses on children's understanding of sources of knowledge, which is based in turn on their understanding of mental concepts. However, provided that Japanese children start using the quotative particle before the age of two, it is reasonable to assume that some inchoate and non-mentalistic understanding of information sources seems to be operating in their minds. We suggest, therefore, that prior to understanding sources of information in the mental domain, children first understand the concept of sources of information in the *perceptual* domain, and such non-mental understanding of information sources would be the most likely conceptual basis for their early productions of quotations.

Studies on infants' auditory perception indicate that by the end of their first year, infants are skillful in localizing the sources of sound (for a review, see Fernald, 2001). For human voices, which are probably the most relevant sources of sound in human lives, even neonates are equipped with an ability to identify the mother's voice through their exposure to that voice during the prenatal period (DeCasper and Fifer, 1980). Thus, although little is known about the development of auditory source monitoring during the toddler period, it should be reasonable to assume that by the time children start producing their first word, they are highly capable of identifying a variety of sound sources.

Furthermore, it is our hypothesis that children's masterful localization of sound sources in the toddler period forms an important cognitive basis for Japanese children's early use of quotative particles accompanying onomatopoeia and mimesis around two years of age. Onomatopoeia and mimesis are iconic expressions based on representations of sound or perceptual properties of an object or action (Imai et al., 2008). We hypothesize that when children quote those iconic expressions, they are aware of the origins of the quoted sound, property, or action, and such awareness of sources of auditory and perceptual information is essential for early use of quotative particle *tte*.

1.3. Developing sensitivity to resemblance relations

A recent cognitive-pragmatic approach to the study of quotation provides a unitary and psychologically oriented account of a variety of quotations (Sperber and Wilson, 1995; Wilson, 2000). The key notion in this account is

''resemblance.'' Resemblance, according to Sperber and Wilson, involves shared properties, and there are no restrictions on the types of properties that can be counted as resemblance. Thus, resemblance can be perceptual, linguistic, logical, conceptual, stylistic, or typographic.

In the case of direct quotation, resemblance in linguistic and formal properties is essential, although resemblance in semantic and logical properties may also be retained. In indirect quotation, by contrast, resemblance in linguistic or formal properties is not fully retained, but resemblance in semantic or logical properties is kept identical to the original. Following Sperber and Wilson, we may call the former *metalinguistic resemblance*, and the latter *interpretive resemblance*.

More generally, among the shared properties between the original utterance and the quotation, those that concern semantic or logical properties contribute to interpretive resemblance and yield various implications when interpreted in a variety of contexts. Resemblance between the original and the quotation is therefore also assessed according to the amount of contextual implications they share. Other shared linguistic properties between the original and the quotation are unrelated to the semantics or logic of the original utterance, and they include phonetic, typographical, and stylistic properties. These belong to a separate category, namely, metalinguistic resemblance. Later, on the basis of the two types of resemblances, we will distinguish two types of quotations: *metalinguistic quotations* and *interpretive quotations*.

The notion of resemblance has originally been proposed as an important concept to account for adults' interpretation of utterances like quotations and ironies, but it has not yet been discussed in the context of children's developmental understanding of quotation. The current study is the first attempt to shed light on the issue of how children's perception of resemblance develops and matures into adult-like understanding, and it does so by looking at early use of quotative particles.

Resemblances of the non-linguistic kind (e.g., perceptual resemblances) are rarely discussed in existing studies of quotation, as the target of the discussion is usually restricted to quotations of human utterances. When we look at young children's quotation, however, and particularly when looking at children's use of quotative particles, the situation is rather different. As will be illustrated in detail later, when Japanese children ''quote'' what they have heard, the items quoted are not always of a linguistic nature. Therefore, it is useful here to broaden the discussion of resemblance to include non-linguistic material as well.

In the psychological literature on children's developing sensitivity to resemblance, perceptual resemblances (mainly auditory and visual) are the focus of discussion. Infants and young children's early perception of similarities in auditory and visual stimuli is evident in their word learning and categorization. Recent studies also suggest that children up to four years of age are better at extracting information from auditory stimuli than from visual counterparts (Sloutsky and Napolitano, 2003; Robinson and Sloutsky, 2004). This may be explained in terms of the relative usefulness of auditory perception in children's word learning. Those studies revealed, however, that children's sensitivity to auditory stimuli is not restricted to purely linguistic sounds. From early on, young children are quite good at recognizing similarities among a variety of auditory stimuli.

Currently, we do not have a clear picture of how children's recognition of auditory resemblances develops over the long term. If we see children's developing ability to recognize similarities in auditory stimuli as a continuum, however, it may be reasonable to hypothesize several distinct phases of development. It was suggested that young children's ability to perceive similarities in auditory stimuli (both linguistic and non-linguistic) should be distinguished from an ability to recognize metalinguistic phonological similarities (e.g., Gombert, 1992; Stanovich, 1992). The former involves spontaneous and intuitive phonological judgments, while the latter involves explicit or reflective awareness. It is the latter, for instance, that enables a child to explain how two words are similar or different.

To distinguish between these two types of awareness, Gombert (1992) uses the contrastive terms *epilinguistic* and *metalinguistic*. Epilinguistic sensitivity enables a child to grasp the phonological structure of a word he has heard so that he can produce and understand the word later. However, a child with epilinguistic sensitivity may not yet be capable of reflecting on the phonological structure of a word. Such reflective understanding of word structure comes only with true metalinguistic awareness. A recent study revealed that epilinguistic awareness begins to operate during the preschool years, before metalinguistic awareness has developed (Saiegh-Haddad, 2007). Moreover, according to Doherty (2000), children's ability to recognize homonyms develops between ages four and five, which corresponds to the time when children's explicit understanding of others' beliefs becomes operational. Thus, we may hypothesize that infants and toddlers first become able to detect similarities among non-linguistic auditory stimuli. This is followed by intuitive recognition of phonological similarities (epilinguistic stage), after which comes the fully reflective recognition of phonological similarities (metalinguistic stage). Furthermore, we hypothesize that children's early use of onomatopoetic expressions are based on their intuitive sensitivity to non-linguistic and phonological similarities. Once reflective metalinguistic awareness of phonological and morphological resemblances is in place sometime around four to five years of age, awareness of semantic resemblances, which is manifested in children's understanding of homonyms and synonyms, may follow.

Unlike recognition of metalinguistic resemblance, which may form a natural continuum with recognition of perceptual resemblance, understanding of interpretive resemblance crucially requires understanding of the speaker's intentions, beliefs and attitudes, or "mental states," behind the utterance. Existing studies on children's understanding of non-literal statements suggest that children's understanding of mental states (i.e., theory of mind) at different developmental points correlates with their sophistication in utterance comprehension. For example, it was found that first-order belief understanding is necessary for understanding metaphorical utterances (Happé, 1993), and that second-order belief understanding is required to understand ironical speech (Filippova and Astington, 2008; Happé, 1993). Furthermore, a recent study also revealed that children's early understanding of a speaker's deceptive intention appears at around the age of four, not before (Mascaro and Sperber, 2009). Even for the interpretation of paraphrases, which are seemingly much easier to understand than non-literal speech, children younger than six years of age are reported to have significant difficulty (Lee et al., 2001).

The developmental gap between the recognition of metalinguistic similarities among synonyms and homonyms around four years of age, and understanding of the interpretive aspect of utterances, including non-literal speeches and paraphrases around six years of age, may be explained by children's ability to attribute appropriate communicative intentions to the speaker. This gap also suggests that recognition of the interpretive resemblances, that is, resemblances of utterance meaning in the context intended by the speaker, starts developing in the early school years. If this is the case, then we may safely assume that sensitivity to interpretive resemblance is absent from a young child's quotations, but it might be a dominant characteristic of the mother's quotation behavior.

2. Data analyses

2.1. Working hypotheses on early quotations

As we have just discussed, previous findings have established some insights into (a) children's ability to understand sources of information and (b) their ability to recognize a variety of resemblances among linguistic and non-linguistic inputs. Based on these findings, here we propose working hypotheses on how young Japanese children between two and three years of age would produce quotations in conversation using the quotative particles *tte* and *to*:

(A) Japanese children use the quotative particles to quote words (which were not part of any utterances produced in the preceding contexts) more frequently than utterances and thoughts that can be attributed to a specific individual or group.

(B) Young children quote utterances concerning desires and emotions of a particular person earlier and more often than utterances expressing someone's beliefs.

(C) As the child's understanding of resemblance relations is quite limited between the ages of two and three, early quotations are predominantly quotations that are identical in form to the original source (e.g., quotations of identical utterances, words, and onomatopoeia). Quotations that are not identical in form, but are identical to the original source in semantic content and pragmatic implications (e.g., quotation of non-identical utterances and thoughts) occur much less frequently.

These working hypotheses will be tested through detailed analyses of the quotative particles in a longitudinal corpus consisting of conversational data between a mother and her child. In addition, we will compare and contrast usage of the two quotative particles *tte* and *to*, analyzing the structures in which each appears and categorizing the quotes to which they are appended.

2.2. Data

We analyzed the Max Planck-Matsui Database, an intensive and longitudinal Japanese mother–child conversation database transcribed in JCHAT format (MacWinney, 2000; Oshima-Takane et al., 1998). The database comprises daily conversations between one female child (code-named NYA) and her mother. The recording commenced just before the child's second birthday and ended just after her fifth birthday. The recording was done in multiple sessions: first for a period of five days, six weeks from the child's second birthday, then again a year later (six weeks from her third birthday). For the rest of the time, recording was carried out once a week. A day's recording lasted approximately an hour.

For the present study, we focus on the data recorded six weeks from the child's second birthday and the data recorded one year later. A total of roughly 60 h of conversational data were analyzed. The child's average MLU for the two time periods was calculated based on the child's first 100 utterances (excluding interjections, formulaic greeting expressions, words from songs, and repetition) produced during the first five-day recording session at each time period. The child's average MLU in morphemes at age two was 3.3, and at age three, 4.2.

Table 1
Classification of the uses of *tte* and *to*.

Major classification	Sub classification			
(A) Utterances	(a) Own	(b) Partner's	(c) Thirty party's	(d) Imagined
(B) Thoughts	(a) Own	(b) Partner's	(c) Thirty party's	(d) Imagined
(C) Words	(a) Onomatopoeia and mimesis		(b) Words and phrases	

Table 2
Number of uses of *tte* and *to* included in the analysis.

Child's age	Mother		Child		Total
	Age 2	Age 3	Age 2	Age 3	
tte	777 (85.9%)	951 (84.5%)	269 (73.9%)	492 (85.3%)	2491 (83.8%)
to	128 (14.1%)	174 (15.5%)	95 (26.1%)	85 (14.7%)	480 (16.2%)
Total	905	1125	364	577	2971

2.3. Methods

We extracted all instances of the quotative particles *tte* and *to* used by the child and the mother in the conversation data. They were classified into three major categories according to the type of items quoted: (A) utterances, (B) thoughts, and (C) words. They were further categorized into sub-groups (see Table 1 for the sub-categories used in the analyses).

Two coders classified the first 215 uses separately and checked the concurrence of classifications. The degree of concurrence was 94.0%. After discussing the differences and agreeing on the criteria for classification between the two, one coder completed the remaining classifications. Frequency of use in each category, both by the mother and the child at the two time points, was then counted.[2] In addition, to test our hypothesis (B), quotations of utterances were divided into the following two groups: (a) utterances related to desires and emotions and (b) others. Separately, in order to confirm or disconfirm our hypothesis (C), all the quotations of the conversational partner's utterances were divided into two categories: (a) metalinguistic quotations and (b) interpretive quotations. We then counted the cases in which the mother and the child repeated the conversational partner's immediate quotation to examine the influence of the partner's preceding utterance on their use of the particles. Finally, structural analyses were carried out for all the instances of quotative particles in the data. We classified them according to the following two criteria: (a) whether the quotative particles are used in sentence-medial or sentence-final position; and (b) whether the particles are immediately followed by an explicit verb of quotation or mental state.

3. Results

3.1. Overview

Altogether, 2491 instances of the particle *tte* and 480 instances of the particle *to* were included in the analysis. Table 2 shows the number (and the ratio) of each particle used by the mother and the child respectively at the two time points. 37 instances of the particles used by the mother and 100 instances of the particles used by the child, for which we couldn't identify the source utterance (i.e., the quoted), were excluded from the analysis.

Both the mother and the child used the more colloquial form *tte* much more frequently than the more formal *to* (about 75–85% of their quotations were accompanied by *tte*).

Fig. 1 shows the result of the major division analysis as to what the mother and the child quoted by using *tte* and *to* (in Fig. 1 and all the figures that follow, the notations ''Mother@age2'' and ''Mother@age3'' indicate 'Mother when the child was two years old' and 'Mother when the child was three years old' respectively). The graph shows that at both time points, the mother used the quotative particles to quote utterances more than twice as frequently as to quote words

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[2] In counting the frequency of use of the two quotative particles, we treated repetitions in the following way: (1) If the speaker repeated the same quotation more than twice within an utterance, we counted them as a single use; but (2) if the speaker repeated her own quotation or echoed the conversational partner's quotation in an immediately following utterance, we counted these as separate uses.
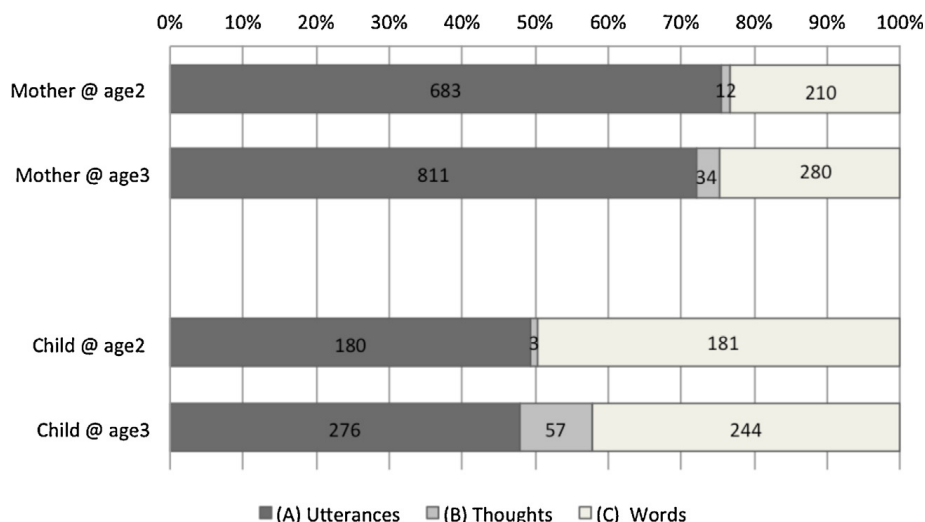
Fig. 1. Major division analysis.

(i.e., onomatopoeia and words/phrases). In contrast, the child used the particles to quote words almost as frequently as to quote utterances. Both of them used the particles to quote thoughts least frequently.

Chi-square tests indicated that there were significant differences among the frequency of use in each category, both for the mother and the child, at both time points (Mother: $X^2(2) = 788.12$, $X^2(2) = 841.16$ at the two time points, respectively; Child: $X^2(2) = 173.13$, $X^2(2) = 145.52$ at the two time points, respectively. All are significant at $p < .01$). Post hoc multiple comparison tests using Ryan's method proved that the mother used the quotative particles to quote utterances significantly more frequently than any other categories at both time points (both significant at $p < .01$ level), while the child used the quotative particles to quote words as frequently as to quote utterances at both time points (no significant difference was found). Both the mother and the child used the quotative particles to refer to thoughts significantly less frequently (all at $p < .01$).

In the following sections, we will look at how the two quotative particles were used in each of the three main categories shown in Table 1.

3.2. Quotation of utterances

We classified the uses in this category based on whose utterances are quoted with quotative particles: (a) one's own utterances, (b) the conversational partner's utterances, (c) a third party's utterances, or (d) imagined utterances. Then we analyzed the mother's and the child's quoted utterances to determine how many of them concern someone's desires and emotions. We also divided all the quotations of the conversational partner's utterances into either metalinguistic or interpretive quotations. In the sections that follow, we will illustrate each subcategory by using representative examples from the actual data before presenting the frequency counts.

3.2.1. Quoting one's own utterances

Categorized here are cases in which all or part of a speaker's past utterance is quoted using the particles. In (7), the child starts drawing on what seems to be her mother's important document. The mother tells the child not to draw on it because it is something important to her, but the child continues drawing on it. Then the mother quotes what she has said earlier on by using the particle *tte*.

(7)   *NMO[3]:   dame.
                  no
                  'No'
    *NMO: sore ni   kakanaide.
                 it   LOC don't-write
                 'Don't draw on it.'

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[3] NMO stands for the mother and NYA for the child. The child's age at the time of utterance is given in parentheses in the last line of each instance in the conventional form (2;00.11), which means that the child was 2 years, 0 months, and 11 days old at the time of utterance.

```
*NMO:    sore Okaasan no    shukudai  desho.
         it   mother   GEN homework TG
         'That's Mummy's homework, you know.'
*NMO:    daiji.
         important
         '(It is) important.'
```

[The child goes on drawing on it]

```
*NMO:    daiji     da tte itteru   noni dooshite kaku no.
         important CP QP say-ing but  why      write FP
         'I'm saying that (it's) important, and why do you draw on it?'                    (2;00.11)
```

When the particle *tte* is used to quote the speaker's own past utterance, either in sentence-medial or sentence-final position, it typically has the effect of reaffirming and emphasizing her assertion. Sometimes the particle is used this way even in the absence of a prior "original" utterance in previous discourse. In that case, the particle communicates overtones that what is quoted is as obvious as what has been said before, so the hearer should be well aware of it. For example, in (8), the mother offers to clear away documents from the table so that the child can have more space for drawing. However, the child refuses by saying *ii* 'Enough' with the quotative particle *tte*, though she has not verbalized it previously. The addition of *tte* gives overtones that her assertion is as obvious as what has been said before.

```
(8)  *NMO:    sore naoshite  ageru   yo.
              it   put-away for-you FP
              'I'll put them (documents) away for you.'
     *NMO:    ne.
              FP
              'See?'
     *NMO:    0. [Mother starts putting the documents away]
     *NYA:    aa@i aa@i aa@i aa@i.
              INT  INT   INT   INT
     *NYA:    ii       tte ii       tte.
              enough QP enough QP
              '(I'm saying) no thank you.'                                                (3;00.02)
```

3.2.2. Quoting the interlocutor's utterances

This category contains cases in which quotative particles are used to quote all or a part of the conversational partner's utterance. In (9) below, the child asked her mother to unfold a sheet of paper. However, soon after the mother unfolded it, the child asked her to fold it back. The mother folded it at the child's beck but reminded her of what she had said before.

```
(9)  *NYA:    Okaasan hirogete!
              Mother    unfold-REQ
              'Mommy, unfold it!'
     *NMO:    hirogeteru jan.
              unfold-ing  FP
              'I'm opening it, see?'
     *NMO:    hirogeta  yo.
              unfolded  FP
              'I have unfolded it.'
     *NYA:    xxx!
     *NMO:    oru no?
              fold FP
              'Do you want me to fold it?'
     *NYA:    oru no oru no.
              fold FP fold FP
              'Fold it. Fold it!'
     *NMO:    hirogete     tte itta  jan.
              unfold-REQ QP said FP
              'You said "unfold it."'                                                     (2;00.00)
```

3.2.3. Utterances of third parties

Classified in this category are the cases in which the quotative particles are used to quote utterances of third parties. In (10) below, the child quotes her friend Koechan's utterance from the day before.

(10)　*NYA:　Koechan kinoo　　kaze hiiteru *tte*　itteta.
　　　　　　Koechan yesterday cold　have　QP　said
　　　　　　'Koechan said that she had a cold yesterday.'　　　　　　　　　　　　(3;00.29)

3.2.4. Imagined utterances

The child and the mother often referred to imagined utterances by using quotative particles. Imagined utterances are (a) utterances attributed to non-speaking entities such as animals, toys and objects; and (b) hypothetical utterances by the speaker herself or some other person. What is common to both types is that there has been no actual utterance produced preceding the quotation. In (11) below, for example, on hearing a dog bark, the child says, "the dog is saying that he wants to eat with us"; thus she attributes an utterance to a barking dog.

(11)　%sit: a sound of dog bark.
　　　*NMO:　wanwan@o itteru　ne.
　　　　　　　bowwow　　saying FP
　　　　　　　'The dog is saying bowwow.'
　　　*NYA:　isshoni　tabetai　ne *tte*　itteru.
　　　　　　　together　eat-want　FP QP　say-ing
　　　　　　　'He is saying "he wants to eat with us".'
　　　*NMO:　a@i, ishhoni　tabetai　ne *tte*　itteru　no [=! laugh]?
　　　　　　　INT,　together　eat-want FP QP　saying FP
　　　　　　　'Oh, (is he) saying "he wants to eat with us"?'
　　　*NMO:　soo　da　ne.
　　　　　　　right CP FP
　　　　　　　'He surely is.'　　　　　　　　　　　　　　　　　　　　　　　　(2;00.22)

In (12) below, the mother uses the quotative particle *tte* to refer to what someone might say in the future. Here the child is drinking orange juice and the mother warns the child if she drinks too much orange juice, her face will turn yellow and someone might ask the child if she is Little Miss Orange.

(12)　*NMO:　ammari nomi sugiru to　　kao　ga kiirokunaru.
　　　　　　　much　drink too　　then face TP turn yellow
　　　　　　　'If you drink too much (orange juice), (your face) will turn yellow.'
　　　*NMO:　orenji iro　ni　natchau to　iya　deshou.
　　　　　　　orange color LOC become then hate FP
　　　　　　　'You don't like it if your face turns orange, right?'
　　　*NMO:　mikan-chan desu ka *tte* iwarechau.
　　　　　　　orange-DIM be　　FP QP will be said
　　　　　　　'Someone might say to you "Are you Little Miss Orange?"'　　　　　(3;00.04)

3.2.5. Quotation of utterances concerning desires and emotions

We analyzed the mother and child's quotations of utterances to determine how many of them cite utterances concerning someone's desires and emotions. For example, in (13) below, the child quoted an utterance of an animated character that expressed his desire to go home:

(13)　*NYA:　moo ouchi kaeritai　　yo: *tte* yutteru.
　　　　　　　now home want-to-go FP QP saying
　　　　　　　'He is saying he wants to go home now.'　　　　　　　　　　　　(2;00.06)

We contrasted these quotations of utterances concerning desires and emotions with those concerning knowledge and belief. For example, the utterance quoted by the mother in (14) below concerns the knowledge state of the quoted speaker. In this example, the mother quoted the child's grandfather's utterance, in which he talked about his ignorance about how to operate a spreadsheet on his personal computer.

(14)   *NMO: (Ojiichan)   hyoo no   tsukurikata   ga wakaranai nda *tte*.
                       grandfather tables GEN how-to-make SB don't know CP QP
                       '(Grandpa says) he doesn't know how to make tables.'   (3;00.29)

3.2.6. Metalinguistic and interpretive quotations

We also classified quotations of interlocutors' utterances according to whether they are based on metalinguistic or interpretive resemblance. When the mother and the child used the particles to quote their conversational partner's formal or linguistic properties (i.e., using the same form and wording as the source utterance), we categorized it as ''metalinguistic quotation.'' On the other hand, when they quote the other's utterance on the basis of resemblance in logical or semantic content, we counted it as ''interpretive quotation.''

In (15) below, the mother tells the child to dance more rhythmically. The child picks up the word *rizumikaru* 'rhythmically' used by the mother and asks what it means. The child quoted a part of the mother's utterance just as she heard it (i.e., on the basis of phonological resemblance), and this example is therefore counted as a case of metalinguistic quotation.

(15)   *NMO: rizumikaru-ni yatte kudasai, rizumikaru-ni.
                       rhythmically do   please,   rhythmically
                       'Do it rhythmically.'
           *NYA: nani, rizumikaru   *tte*?.
                       what rhythmically QP
                       'What does 'rhythmically' mean?'
           *NMO: rizumikaru tte oto   oto   ni   ongaku ni   awasete.
                       rhythmically QP sound sound LOC music   LOC fit
                       'To do something ''rhythmically'' means you should do it along with the music.'   (3;00.15)

On the other hand, the mother's quotation in (16) below is counted as a case of interpretive quotation, as here the mother quotes the child's previous utterance on the basis of resemblance in semantic content. The mother asks the child if she wants yoghurt and the child says that she would ''eat it.'' However, soon after the mother serves her yoghurt, the child turns it down saying she does not want it. Then the mother reminds the child that she has previously said, ''Give me.'' The wording the mother used in the quotation differs utterly from the child's original utterance. The mother quoted the child's utterance in terms of the implication the child's original utterance conveyed.

(16)   *NMO: yooguruto wa?
                       yoghurt   TP
                       'Would you like yoghurt?'
           *NYA: taberu yo.
                       eat   FP
                       'I'll eat (it).'
           (NYA starts to eat the yoghurt)
           *NYA: xxx.
           *NMO: nn@i?
                       INT
                       'What's the matter?'
           *NYA: iranai.
                       want-not
                       'I don't want it.'
           *NMO: moo ii   no?
                       no   more FP?
                       'You don't want any more?'
           *NMO: Nyaachan choodai *tte* itta nda yo?
                       Nyaachan give   QP said CP FP?
                       'You said ''give me,'' didn't you?'   (2;00.10)

3.2.7. Frequency counts within the category

Now we present the results of the analyses conducted on the quotations of utterances produced by the mother and the child.
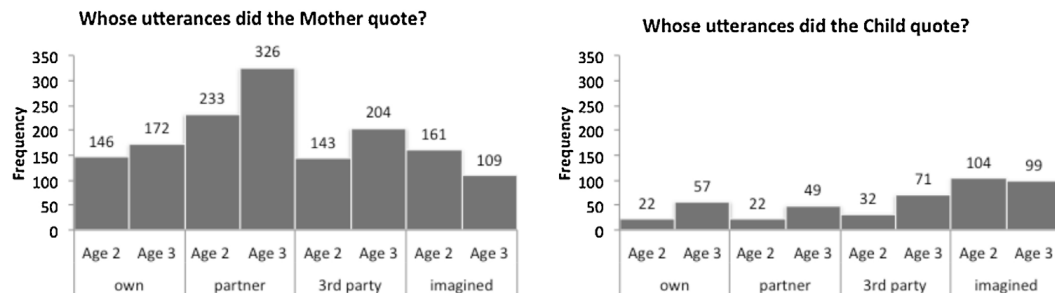
Fig. 2. Quotation of utterances by the mother and the child. *Note*: ''Age 2'' and ''Age 3'' in the mother's graph represent the child's age at the time of data collection.

3.2.7.1. Whose utterances were quoted?. The graphs in Fig. 2 show the result of the analyses as to whose utterances the mother and the child quoted using the quotative particles. The graphs show that the mother quoted the conversational partner's utterances most frequently at both time points (34% when the child was two and 40% when the child was three), while the child quoted imagined utterances most frequently at both time points (58% at age two and 36% at age three). Chi-square tests revealed that the differences among the frequencies of use in each category were significant, both for the mother and the child, at both time points (Mother: $X^2(3) = 31.35$, $p < .01$, $X^2(3) = 122.94$, $p < .01$; Child: $X^2(3) = 104.62$, $p < .01$, $X^2(3) = 20.99$, $p < .01$). Ryan's multiple comparison tests indicated that at both time points, the mother quoted utterances of her interlocutor significantly more frequently than her own utterances, those of third parties, or those imagined or attributed to someone else (all at $p < .01$). In addition, the test showed that when the child was three years old, the mother quoted imagined utterances less frequently than utterances in the other three categories (all significant at $p < .01$). On the other hand, the tests demonstrated that at age two, the child quoted imagined utterances significantly more frequently than real utterances (i.e., her own, her partner's, or those of a third party). When she was three years old, she still quoted imagined utterances significantly more frequently than her own utterances or the conversational partner's utterances (all at $p < .01$), but she quoted third parties' utterances as frequently as imagined utterances (no significant difference was found).

3.2.7.2. Quotation of utterances concerning desires and emotions. Nearly half of the child's quotations of imagined utterances—46% at age two and 44% at age three—concerned desires and emotions. Additionally, of all her remaining quotations of utterances (her own, her interlocutor's, and those of third parties in the real world), 39% at age two and 23% at age three concerned desires and emotions. Other than utterances concerning desires and emotions, she quoted a variety of other types of utterances: utterances concerning phatic expressions (e.g., ''Hello,'' ''Take care''), addresses (e.g., ''Hey Daddy,'' ''Nyaachan''), descriptive utterances (e.g., ''This is my picture book''), questions (e.g., ''What are you doing?'') and so on. However, the child in our study did not quote utterances expressing knowledge or belief. This result may lend support to our hypothesis (B) that young children would quote utterances concerning desires and emotions earlier and more frequently than those expressing belief.

The mother also quoted many utterances concerning desires and emotions—31% of all quoted utterances when the child was two years old and 20% when the child was three. The mother also quoted utterances expressing knowledge and beliefs, though she did so much less frequently (less than 1% of quoted utterances in both time periods).

3.2.7.3. Metalinguistic or interpretive?. The majority of the mother's quotations of her interlocutor's utterances were metalinguistic quotations. That is, they were based on resemblance in form (76.8% when the child was two and 68.4% when the child was three), except for cases in which source utterances were not found in the corpus data, and cases in which the mother used the particles to ask what the child said (e.g., ''What-*tte* did you say?''). Immediately following the child's utterance, the mother often reproduced a part of it in order to ask what the child meant by it, to point out pronunciation errors, or to reproach the child for her choice of expression (e.g., when the child demanded something using a command form rather than a request form).

When the mother used the quotative particles to quote the child's utterance interpretively, she occasionally used different wordings from the child's original utterance: she quoted utterances by way of an implication, as in (16) above, or a paraphrase of the original utterance.

The majority of the child's quotations of her interlocutor's utterances were also metalinguistic. More than 80% of the child's quotations of the mother's utterances were based on metalinguistic resemblance (82.4% at age two and 84.4% at age three), except for cases in which source utterances were not found in the corpus data, and cases in which the child used quotative particles to ask what the mother said. Most of the child's metalinguistic quotations follow the same pattern

as that given in (15) above: the child used the particles to pick up words or phrases used by the mother in order to ask what was meant by them.

The result is consistent with our hypothesis (C) that early quotations are predominantly metalinguistic and that interpretive quotations would occur less frequently. Children as early as two to three years old seem to be well equipped to quote utterances metalinguistically on the basis of phonological resemblance, but their ability to attribute communicative intention to the speaker seems to be rather primitive in comparison.

When the child used the particles to quote her mother's utterance interpretively, the child typically made only subtle changes to the original utterances. For example, in (17) below, the child quoted the mother's utterance. The child's quotation differed from the original utterance only by one more word. In the preceding conversation, the mother asked the child to put on some more sunscreen. Having put on some cream, the child asked the mother to give her more. The mother told the child that she would need "only a little more." The child then asked the mother why she had said so, paraphrasing the mother's utterance as "only a little *bit* more." The use of the word *sukoshi* 'bit' in the child's quotation indicates that she quoted the mother's utterance not for its linguistic property but for its propositional content.

(17)   *NMO: moo chotto de   ii   kara.
                 more little   CON enough FP
                 'Only a little more (sunscreen cream) is enough.'
        *NMO: hai.
                 here-you-are
                 'Here you are.'
        *NYA: nande moo chotto nan?
                 why   more little   CP-FP
                 'Why only a little more?'
        *NYA: nande moo chotto sukoshi tte.
                 why   more little   bit   QP
                 'Why (do you say) only a little bit more?'   (3;00.16)

3.3. Reporting of thoughts

We classified the uses of the quotative particles in this category according to whose thoughts were reported in the utterance.

3.3.1. Thoughts of one's own

Classified in this category are cases in which mental states of the speaker herself were reported by using the quotative particles. In (18), for example, the mother asked the child if she wanted to invite her friend Koechan to go with them to Monkey Park. However, the child's reaction was somehow hesitant. Asked by the mother why she was hesitant, the child said that she did not think Koechan could go. She referred to her own belief by using *to*.

(18)   *NMO: Koechan sasou [=! laugh]?
                 Koechan invite
                 'Do you want to invite Koechan?'
        *NYA: ee:@i.
                 INT
                 'Um'
        *NMO: nande ee:@i na no?
                 why   INT   CP FP
                 'Why (do you say) um?'
        *NYA: Koechan wa ikeren@d *to*   omoo kedo sa.
                 Koechan TP cannot-go QP think FP   FP
                 'I don't think Koechan could go.'
        *NMO: n?
                 INT
                 'Why?'
        *NYA: Koechan kinoo   kaze hiiteru tte itteta.
                 Koechan yesterday cold having QP said
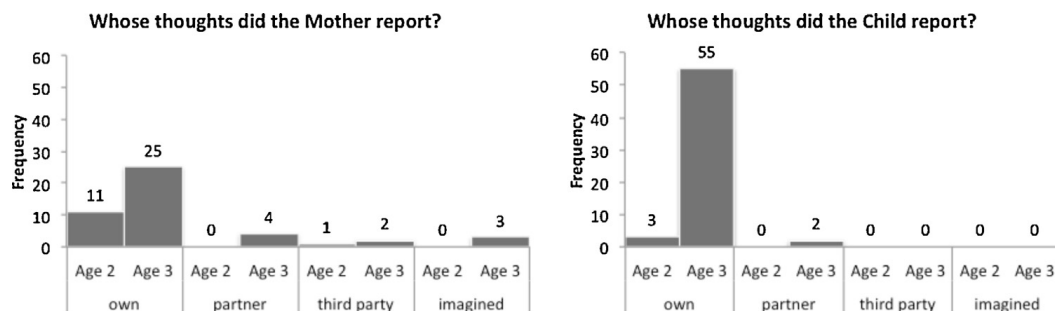   'Koechan said that she had a cold yesterday.'   (3;00.29)

Whose thoughts did the Mother report?

Whose thoughts did the Child report?

Fig. 3. Reporting of thoughts by the mother and the child. *Note*: ''Age 2'' and ''Age 3'' in the mother's graph represent the child's age at the time of data collection.

3.3.2. Thoughts of the partner

Classified here are instances in which the interlocutor's mental state is represented using the quotative particles. The conversation in (19) below took place while the mother and the child were playing with a coloring book. The child insists that there is nowhere to color anymore and the mother reproves the child, saying that she cannot find a place because she believes that there is none. The mother is referring to the child's belief.

(19)　　*NYA:　　iro　　nuru　toko　wa　nai　　　　mon!
　　　　　　　　　　color　paint　place　TP　not-exist　FP
　　　　　　　　　　'There is nowhere to color anymore!'
　　　　　*NMO:　　ari　　masu.
　　　　　　　　　　exist　is
　　　　　　　　　　'There is!'
　　　　　*NYA:　　nai　　　　mon.
　　　　　　　　　　not-exist　FP
　　　　　　　　　　'There isn't!'
　　　　　*NMO:　　nai　　　*tte*　omotteru　kara　　　　nai　　　　no　yo.
　　　　　　　　　　not-exist　QP　think-ing　because　not-exist　FP　FP
　　　　　　　　　　'Because you believe ''there isn't,'' you cannot find it.'
　　　　　*NMO:　　mitsuke　naku　　cha.
　　　　　　　　　　find　　　should　FP
　　　　　　　　　　'You should find it.'　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(3;01.02)

3.3.3. Frequency counts within the category

As already shown in Fig. 1, both the mother and the child used quotative particles to report thoughts much less frequently than to quote utterances or words. Detailed analyses of whose thoughts were represented revealed that both the mother and the child used the particles to report their own thoughts most of the time (Mother: 78.3%, Child 96.7%) (see Fig. 3).

At the age of three, the child used the quotative particles to refer to her own thoughts 55 times, of which 51 (92.7%) appeared with the verb *omou* (*think*). When a verb of thinking is used to refer to the speaker's own thought, it has at least two functions: one is to express the content of the thought, and the other is to express the propositional attitude of uncertainty toward what is described in the utterance (Shatz et al., 1983). Diessel and Tomasello (2001) suggest that when English-speaking three-year-olds start producing utterances of the form *I think* with a complement clause, the construction *I think* functions as a parenthetical epistemic marker indicating the speaker's degree of certainty, based on the fact that their uses of the construction had little variation: ''the verb occurs in the present, indicative, active, taking the first-person singular pronoun *I* as subject (p. 112).'' A similar suggestion has been made for the Japanese mental verb *omou* 'think' (Nitta, 1991; Moriyama, 1992),

We therefore examined the child's use of the verb *omou* in more detail to determine its function. It was found that the child used the verb *omou* not only in the present tense but also with inflections of the past (as in *omotta* 'thought') or stative/present progressive (as in *omotteiru* '[is] thinking').[4] This suggests that the child occasionally used the verb *omou* to refer to her own mental state.

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[4] Japanese verb ending with – *teiru* form may be used to mark either progressive or stative aspect, depending on the kind of verb to which it is appended. For *omou*, the – *teiru* form (*omotteiru*) is mostly used as a stative to mean *think*. However, occasions of progressive use appear in the child's speech. For example, when asked by her mother if she has brushed her teeth, she answers, *(Hamigaki) shiyou kana to omotteiru nda kedo* 'I'm just thinking of brushing my teeth now'.

3.4. Quotation of words

In addition to the quotation of utterances and thoughts, we analyzed the quotation of words that did not appear in the preceding discourse. We divided uses of the quotative particles in this category into the following subcategories: (a) quotations of onomatopoeia or mimesis, and (b) quotations of words or phrases.

3.4.1. Onomatopoeia and mimesis

Classified in this subcategory are the cases in which quotative particles are used with onomatopoeic expressions, that is, words imitating sounds, or with mimetic expressions, that is, words representing perceptual properties or actions. In (20) below, the child uses the quotative particle *tte* with an onomatopoeic word *bu:n* that phonetically resembles the noise coming from the air-conditioner in the room where she was staying, and in (21) the child uses *tte* with a mimetic expression, *chokochoko*, which represents the way a ladybug scuttled away.

(20)   *NYA: nanka   bu:n@o   *tte* itteru   yo.
                 something [onomatopoeia] QP saying   FP
                 'Something is going "bu:n".'
        *NMO: mushi?
                 insect
                 'An insect?'
        *NYA: chigau   yo.
                 different FP
                 'No, it isn't.'
        *NMO: n@i eakon   yo kore.
                 INT air-conditioner FP this
                 'This should be the noise coming from the air conditioner.'   (3;00.04)

(21)   *NMO: Tentoomushi tsukamaeta no?
                 ladybug   caught   FP
                 'Have you caught the ladybug?'
        *NYA: Tentoomushi chokochoko@o *tte* itchatta no.
                 ladybug   [mimesis]   QP gone   FP
                 'The ladybug scuttled away.'   (2;01.08)

3.4.2. Words and phrases

Classified in this category are instances in which the quotative particles are used to quote words, phrases, names, and formulaic expressions that were not part of any utterance in the preceding discourse. For example, in (22) below, the child simply asks the mother what the word *gakko* 'school' means. Then the mother provides a definition of the word.

(22)   *NYA: gakkoo *tte* nani?
                 school QP what
                 'What is "school?"'
        *NMO: uun@i.
                 INT
                 'Well.'
        *NMO: gakkoo wa ne benkyoo suru toko desu.
                 school TP INT study   do   place CP-polite)
                 'A school is where you study.'   (2;00.01)

Also classified in this category is a group of uses in which the quotative particles are used with formulaic expressions such as *baibai* 'bye-bye' or *kanpai* 'cheers', which are typically accompanied by formulaic gestures or behaviors. When these expressions were followed by a quotative particle and an explicit verb of quotation, such as *itta* 'said', we categorized them as a quotation of what someone uttered. However, if those formulaic expressions were followed by a combination of a quotative particle and action verb such as *shita* 'did', we interpreted them as referring to gestures or behaviors associated with the expressions. What is important is that in such cases, the formulaic expressions quoted were not uttered by anyone in the preceding discourse. Therefore, we classified these cases into the category of 'words/ phrases' rather than the category of 'utterances'. One such case is shown in the following example:
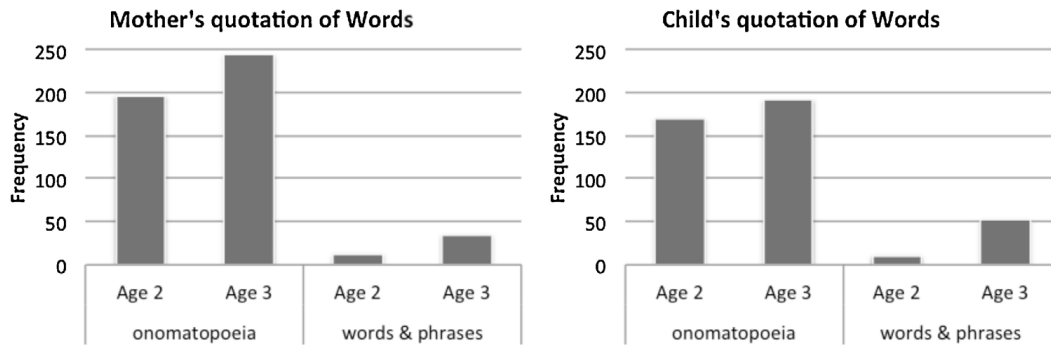
Fig. 4. Quotation of words by the mother and the child.

(23)   *NMO: Nyaachan, Aichan ni   baibai@i *tte* shita desho.
                Nyaachan, Aichan LOC bye-bye QP did   TG
                'You did bye-bye (waved) to Aichan, didn't you?   (2;00.01)

3.4.3. Frequency counts within the category

As shown in Fig. 4, both the mother and the child used the quotative particles with onomatopoetic (mimetic) expressions frequently at both time points: 93.8% and 87.5% of the mother's quoted words and 93.9% and 78.7% of the child's represented onomatopoeia and mimetic expressions, respectively).

Onomatopoeia and mimesis are expressions based on representations of sound, perceptual properties, or actions, and their quotation should be based on perceptual resemblances. The fact that the child frequently used the quotative particles with onomatopoeia and mimesis may lend support to our hypothesis (C) that young children's early quotations may begin with those based on perceptual resemblances.

3.5. Repetition of the interlocutor's quotation

We also noticed that both the mother and the child often repeated each other's quotations. We examined cases where the speaker repeated the conversational partner's immediately prior quotation, as in (24) and (25) below. In (24) the mother echoes a quotation of onomatopoeia used by the child in her preceding utterance, and in (25) the child repeats a quotation of an animation character's utterance used by the mother in her preceding utterance.

(24)   *NYA: nanka   ten@o   *tte* itta, nanka.
                something [onomatopoeia] QP went something
                'Something went "ten," something.'
        *NMO: ten@o   *tte* itta?
                [onomatopoeia] QP went
                '(Something) went "ten"?'
        *NYA: nan daro   ne.
                what wonder FP
                'What's that?'   [2;00.12]

(25)   *NMO: Kurara ga tatta: *tte* itteru   yo.
                Kurara SB stood-up QP saying FP
                '(Heidi) is saying "Clara finally stood up!"'
        *NYA: Kurara ga tatta: *tte* itteru.
                Kurara SB stood-up QP saying
                '(Heidi) is saying "Clara finally stood up!"'   [2;01.08]

There seem to be two types of repetition: one is functional and the other is imitative. Many of the mother's repetitions of the child's previous quotative utterance were apparently functional: expressing doubt or suspicion, questioning, confirming, or agreeing to the child's utterance. By contrast, many of the child's repetitions of the mother's quotation were seemingly imitative: she echoed what the mother uttered without committing herself to its propositional content.

Fig. 5 shows the ratio of the cases where the mother and the child repeated their interlocutor's immediate quotation in each category and at each time point. When the child was two, about 30% of the mother's quotations of words

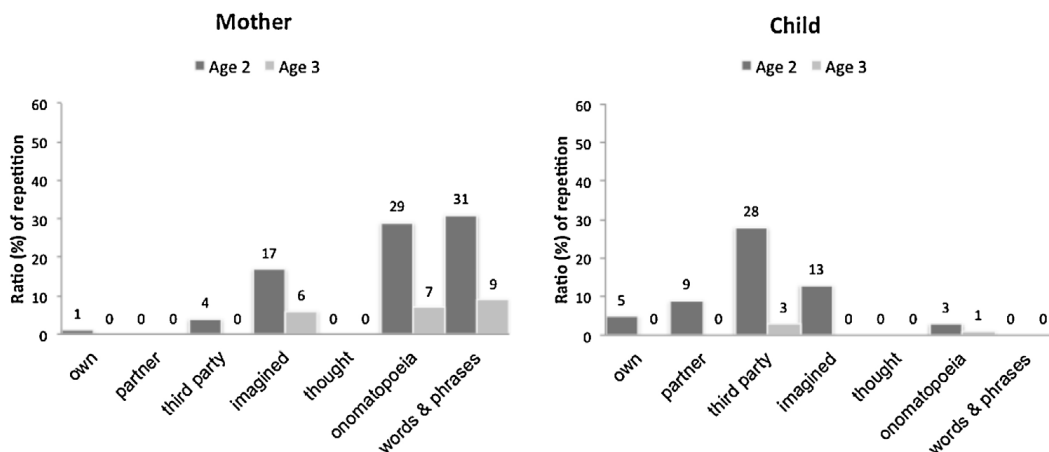**Mother**   **Child**

Fig. 5. Ratio of repetition of the interlocutor's quotation.

(onomatopoeia and words/phrases) were repetitions of the child's prior quotations, and about 30% of the child's quotations of third parties' utterances were repetitions of the mother's quotation. On the other hand, most of the child's quotations of onomatopoeia and words/phrases were spontaneous, not repetitions of the mother's prior quotations. This may suggest that the child's quotations of utterances at age two tended to be prompted by the mother's quotation of them, and that her primary quotation behavior focused on onomatopoeia and words/phrases. When the child was three years old, repetitions were less frequent overall. Imitation at an earlier stage may play a role in children's acquisition of the forms and functions of utterance quotation.

3.6. Comparison of the two quotative particles tte *and* to

Finally, we compared and contrasted the usage and functions of the two quotative particles by examining the structure of the quotations in which they were used. The structure of quotations was analyzed according to the following two criteria: (a) whether the quotative particles are used in sentence-medial or sentence-final position; and (b) whether or not the particles are immediately followed by a verb of quotation or mental state. In examples (26) and (27) below, *tte* is used in sentence-final and in sentence-medial position, respectively. In (28), *tte* is accompanied by a verb of quotation *iu* 'say', while in (29), a mental state verb *omou* 'think' is merely indicated.

(26)　*NMO:　Manachan　　　ECC　　　　de　eego　　naratteru *tte*.
　　　　　　　Manachan(name) ECC(school) LOC English learning　QP
　　　　　　　'I heard that Manachan is learning English at ECC.'　　　　　　　　　　　　(3;01.08)

(27)　*NYA:　dakara　　osaete okou *tte*　itta　noni:
　　　　　　　that's-why hold　　keep QP　said FP
　　　　　　　'That's why I said that we should keep holding (the toy).'　　　　　　　　　(3;00.22)

(28)　*NYA:　dakara moo　　necha dame　　*tte*　itta　janai.
　　　　　　　DM　　no-more sleep　not-good QP　said FP
　　　　　　　'That's why I said ''don't sleep any more,'' didn't I?'　　　　　　　　　　　　(3;00.25)

(29)　*NMO:　Nyaachan taberu kana *tte*, asa　　　wa onigiri　ni　shita yo
　　　　　　　Nyaachan eat　　　FP　QP, morning TP rice-ball OB did　　FP
　　　　　　　'(Thinking that) Nyaachan may want to eat them, I made rice balls for breakfast.'　(3;01.02)

The results of the overall analyses are shown in Table 3. We found that both particles were used in sentence-medial position more frequently than in sentence-final position. Both the mother and the child used *tte* in sentence-medial position about 60% of the time, and they used *to* in sentence-medial position more than 80% of the time.

We also looked at the items quoted by sentence-medial or sentence-final particles (see Column (2) of Table 3). Overall, *tte* was used to quote utterances more frequently than thoughts or words in both sentence-medial and sentence-final positions. In contrast, *to* was used more frequently to quote words in both positions. The findings indicate that the main functions of the quotative particles do not change according to where they are positioned in an utterance. In addition, the

Table 3
Structural analyses of the mother and child's use of *tte* and *to*.

(1) Position	n	(%)	(2) What is quoted	n	(%)	(3) Explicit verb?	n	(%)
(A) Mother's use of the particle *tte* (Total number = 1728)								
Sentence-final	641	(37.1%)	Words	23	(3.5%)			
			Utterances	615	(95.9%)			
			Thoughts	3	(20.9%)			
Sentence-medial	1087	(62.9%)	Words	227	(20.9%)	Yes	50	(22.0%)
						No	177	(78.0%)
			Utterances	853	(78.5%)	Yes	406	(47.6%)
						No	447	(52.4%)
			Thoughts	7	(0.6%)	Yes	3	(42.9%)
						No	4	(57.1%)
(B) Child's use of the particle *tte* (Total number = 761)								
Sentence-final	262	(34.4%)	Words	47	(17.9%)			
			Utterances	214	(81.7%)			
			Thoughts	1	(0.4%)			
Sentence-medial	499	(65.6%)	Words	257	(51.5%)	Yes	52	(0.2%)
						No	205	(79.8%)
			Utterances	238	(47.7%)	Yes	176	(73.9%)
						No	62	(26.1%)
			Thoughts	4	(0.8%)	Yes	2	(50.0%)
						No	2	(50.0%)
(C) Mother's use of the particle *to* (Total number = 302)								
Sentence-final	59	(19.5%)	Words	55	(93.2%)			
			Utterances	2	(3.4%)			
			Thoughts	2	(3.4%)			
Sentence-medial	243	(80.5%)	Words	185	(76.1%)	Yes	7	(3.8%)
						No	178	(96.2%)
			Utterances	24	(9.9%)	Yes	24	(100%)
						No	0	(0%)
			Thoughts	34	(14.0%)	Yes	34	(100%)
						No	0	(0%)
(D) Child's use of the particle *to* (Total number = 180)								
Sentence-final	13	(7.2%)	Words	12	(93.3%)			
			Utterances	1	(7.7%)			
			Thoughts	0	(0%)			
Sentence-medial	167	(92.8%)	Words	110	(65.9%)	Yes	3	(2.7%)
						No	107	(97.3%)
			Utterances	2	(1.2%)	Yes	2	(100%)
						No	0	(0%)
			Thoughts	55	(32.9%)	Yes	55	(100%)
						No	0	(0%)

analyses revealed that the child used the sentence-medial *tte* equally often to quote both utterances and thoughts as well as words. This suggests that for a young child, *tte* is a primary quotative particle, used to quote words until a later alternative, *to*, is acquired. The analyses also revealed that *to* is the main quotative particle used to refer to thoughts, and for this purpose, the sentence-medial structure is usually employed.

Next, focusing on the sentence-medial particles, we examined whether or not they were accompanied by a verb of quotation (e.g., *iu* 'say, tell, go') or of mental state (e.g., *omou* 'think') (see Column (3) of Table 3). As Kamada (2000) points out, Japanese quotative particles can be used in the absence of such a verb so long as they appear in sentence-medial position, as in (30) and (31).

(30)   Sensei wa kotae   ga wakaranai *to* hon o   hiraita.
        teacher TP answer OB know not QP book OB opened
        'The teacher opened the book, saying he doesn't know the answer.'

(31) Sensei wa batan   *to* hon o   hiraita.
      teacher TP [sound effect of opening a book] QP book OB opened
      'The teacher opened the book, making a flump noise.'   ([Kamada, 2000](#))

When the mother and the child quoted onomatopoeia and words/phrases using sentence-medial *tte* and *to*, both tended to use the particles without a verb of quotation much more frequently. In quoting utterances with sentence-medial *tte*, the mother used the particle without a verb of quotation slightly more often, but the child used the particle with an explicit verb of quotation more frequently. When quoting thoughts using sentence-medial *tte*, the mother and the child each used a verb of mental state half the time. When they quoted utterances and thoughts using sentence-medial *to*, these constructions were always accompanied by a verb of quotation or of mental state.

4. Discussion

To quote someone else's utterances requires a complex set of psychological processes. In adult communication, when a piece of information originally comes from someone else's speech or writing, it is expected that the speaker should acknowledge its source either explicitly or implicitly, so that the hearer correctly understands the origin of the information. A variety of devices for quotation—for instance, direct and indirect quotation—play an important function in our communication. In this paper, we examined the early development of the ability to acknowledge sources of information by looking at a young Japanese child's use of quotative particles in mother–child conversation. To that end, based on findings from theory of mind research and cognitive pragmatics, we first postulated three hypotheses on how young Japanese children between the ages of two and three would use the two quotative particles in conversation. We tested the hypotheses through detailed analyses of intensive and longitudinal data consisting of conversations between one Japanese child and her mother.

Our first hypothesis concerned children's ability to attribute utterances to the original speaker. On the basis of the previous finding that children's ability to attribute knowledge and belief states to someone else develops between three and six, we predicted that children between two and three cannot attribute utterances to the original speaker. The use of the quotative particles in the longitudinal data we analyzed, however, strongly indicates that even at the age of two years, the child not only had an inchoate sense of the source of information, but also had some initial ability to attribute utterances to the original speaker by the use of the quotative particle *tte*. Unlike adults' quotation, though, the typical sources of quotation at this stage were not utterances of other human beings, but rather imagined utterances of non-human companions including pets, toys, and imaginary characters who are unable to speak. In such cases, the child invented the original source utterance herself and attributed it to one of those companions. The child's quotation of imagined utterances may therefore be closer to the act of speaking by proxy than that of quoting real utterances. Although we do not deny that there are many qualitative differences between the two, we believe that the ability to use quotative particles to attribute a quoted utterance to the original source speaker is required in either case. Moreover, our analyses also indicate that the child's quotation of both imagined and actual utterances is based on her existing ability to attribute desires and emotions to others. Almost half of the child's quotations of imagined utterances concerned desires and emotions. This finding confirms our second hypothesis: that young children, who already have a good understanding of the concept of desires and basic emotions, would quote utterances expressing desires and emotions more readily than those expressing thoughts and beliefs.

Extensive analyses of the use of the two quotative particles by the child and the mother at the two time points provided us with many other novel findings about the early uses of Japanese quotative particles. Both the child and the mother used the particle *tte* more frequently than the particle *to*. The mother's frequent use of *tte* in conversation supports the previous findings that Japanese adults predominantly use the particle *tte* in conversation. The current study suggests that the tendency may also be extended to children's early use of the particles.

Unlike the mother, who used the quotative particle *tte* to quote utterances most of the time, the child used it to quote words as often as to quote utterances. This finding partially supports our third hypothesis: that early quotations are predominantly based on perceptual and metalinguistic resemblances. The fact that the child frequently used the quotative particle to cite onomatopoeia indicates that the child's ability to recognize perceptual resemblances was fully functional by two years of age. The child's intuitive sensitivity to metalinguistic resemblances (i.e., her epilinguistic sensitivity) was also suggested by her use of the quotative particle to cite words/phrases, typically in order to clarify their meanings. The majority of the child's quotations of her mother's utterances were also based on metalinguistic resemblances.

Interestingly, the majority of the mother's quotations of the child's utterances were also based on metalinguistic resemblances, which goes against our prediction that the mother's quotations of utterances would more likely be based on interpretive resemblances. The mother's use of metalinguistic quotations may result from her strategic choice, in which she tried to support her child's word learning by repeating or reformulating the child's uttered words and expressions ([Clark and Bernicot, 2008](#)).

Noteworthily, both mother and child rarely reported someone else's thoughts by using the quotative particles. It has been reported that in conversations between Japanese mothers and their children, mental state verbs such as *omou* 'think' and *sinjiru* 'believe' are rarely used (Matsui et al., 2006). The data analyzed in this study confirm that tendency.

Finally, our analyses of the structure of the utterances in which the quotative particles are used revealed some interesting results. Overall, the particle *tte* was used much more frequently to quote utterances than words, although the tendency was stronger when the particle appeared in sentence-final position. Both the mother and the child used the particle more often in sentence-medial position. When sentence-medial *tte* was used to quote utterances, the mother used it with explicit verbs of quotation, such as *iu* 'say/tell/go', only half of the time, while such verbs were used by the child more than 70% of the time. The particle *to*, by contrast, was used in sentence-medial position most of the time, in order to quote onomatopoeia and words/phrases. Verbs of quotation were rarely used with *to* to quote onomatopoeia.

Overall, the child's use of the two quotative particles at ages two and three supports our hypotheses on young children's early quotations. Our study showed that by the age of two, a child can quote a variety of verbal inputs, from onomatopoeia to utterances. Although the majority of quotations in the mother–child conversational data were based on resemblance in form, the child's quotations of imagined utterances were an exception: they were based on the child's understanding of inner states such as desires and emotions. Our findings indicate that children's early quotations of utterances may be linked to their imagination and their understanding of pretense. We speculate that pretend play or make-believe may foster toddlers' early metarepresentational ability, which is required in order to attribute quoted utterances to their original sources. The specific role of pretend play in the development of children's early quotations is an important and fascinating topic, and we look forward to the insights and questions that are sure to result from future studies.

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