Inter-turn pauses in the conversations of three-year-old children and their parents

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Inter-turn pauses in the conversations of three-year-old children and their parents

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Abstract

The present study is aimed to explore the pause durations during turn-taking (i.e., inter-turn pauses) in child–adult conversation. Participants were three dyads each of typically developing 3-year-old toddlers and their parents from Japanese- and English-speaking families. Speech was recorded in a quiet room in each child's home for about 2 hours per month. Conversational speech between the parent and child was extracted from each audio file. Pauses ranging from 0.1 up to 3 s, at the turn transition from the current speaker to the next, were extracted. The results showed that the average durations of inter-turn pauses at turn transition from child to parent and from parent to child were less than 1 s, regardless of language background. The results suggest that children more or less utilize pauses during turn-taking, although the pause duration of children was relatively longer than that of adults.

1. Introduction

Pauses play an important role in speech production. Speech pauses are defined as silent intervals that have no lexical meaning but have several communicative functions—for instance, to emphasize a message or to give listeners the time to comprehend a given message, make comments, or ask questions (e.g., Esposito & Marinaro, 2007; Goldman-Eisler, 1968; Green, 1977). During conversation, there are two types of pauses: intra-turn pauses, which occur within one of the speaker's utterances, and inter-turn pauses, which occur between the turns of the current speaker and the following (Shigematsu, 2007). The duration of these pauses is important for communication; for example, pauses that are too long may cause problems during interaction with others. Jefferson (1989) reported that 1 s is the "maximum of tolerance" for pauses in conversation. Roberts et al. (2006) also found that with increasing inter-turn pause duration (up to 1.2 s), there was a corresponding increase in perception of unwillingness and

disagreement following a request or assessment. It must be noted, however, that these previous studies explored the characteristics of pauses in conversation only between adults.

An issue relevant to the present study is whether children in the earliest stages of language learning are sensitive to the pause duration in a similar way as adults are during conversations. Some studies have explored how pauses are used by children in the early stages of language acquisition. For example, Esposito (2005) explored speech pauses among 9-year-old children during spontaneous narratives. The results showed that children used pauses strategically based on pause duration—specifically, short pauses (from 0.15 up to 0.5 s) and medium-length pauses (from 0.501 up to 0.90 s) typically preceded utterances containing new information, whereas long pauses (from more than 0.9 s) were used to identify changes in scene, time and event structure. During child–child conversation, Garvey and Berninger (1981) showed that the mean duration of pauses among younger children (2–3 years old) was 1.1–1.8 s, which was longer than were those of older children. These previous studies indicated that children have more or less mastered certain functions of pauses, and that the children tend to have relatively longer pauses than do adults (Jefferson, 1989). However, these studies (Esposito, 2005; Garvey & Berninger, 1981) did not directly explore how pause duration differs for child–adult conversation. It is also unclear whether language background influences children's acquisition of rules governing pause duration. Thus, the present study explored the distribution of pause durations during turn-taking in conversations produced by dyads of Japanese- and English-speaking children and parents.

2. Method

2.1 Participants

Participants were three dyads of 3-year-old typically developing toddlers (two girls and one boy) and their parents from two different language backgrounds (Japanese and English). The Japanese-learning toddlers were being raised by monolingual adult Japanese speakers, while the English-learning toddlers were being raised by monolingual or bilingual adult English speakers. Parental consent form as well as an information sheet were provided. Procedures and the time necessary to complete the study were explained by the researcher. Signed parental consent forms were then collected from all parents.

2.2 Procedure

Children's and parents' speech was recorded with a digital audio recorder (Roland, R-09HR) in a quiet room in each child's home for about 2 hours per month. The recorder had a 44.1-kHz sampling rate and 16-bit linear quantization, and was placed on a pillow to prevent it from vibrating. No specific procedures were utilized to elicit children's speech. Special care was taken to ensure that each toddler's home environment was normal. The parent or parents were instructed to behave in their usual manner and to perform their daily activities during the recording process.

2.3 Speech samples

Conversational speech involving parents and children was extracted from each audio file. Monologue speech from either the parent or child was not included in this study. The conversation topic was varied among the participant, such as books, toys, characters, animals, and foods (see Table 1). The duration of speech samples was around 10-20 minutes. E shows dyads of English-speaking child and his/her parent, and J shows dyads of Japanese-speaking child and his/her parent.

Table 1. Speech samples

Participants	Conversation topics
E01	Books, toys, foods, dolls, a medical checkup, animals, and a story
E02	The baby, a doctor, a picture book, foods, animals, toys, and shopping
E03	Toys, a story, and animals
J01	Animals, an animation, and a storybook
J02	Animation, laundry, play, and food
J03	A TV program, animation, and kindergarten

2.4 Data analysis

The author and two research assistants extracted all silent intervals from each recording using the audio software Praat (http://www.fon.hum.uva.nl/praat/). We analyzed only the silent intervals (i.e., pauses) during the turn transition from parent to child or from child to parent that ranged from 0.1 up to 3 s. If a child or parent produced anomalous vocal signals, such as a cough, or a sneeze, the silent intervals before and after these signals were excluded.

3. Results

Tables 2 and 3 present the duration of inter-turn pauses from children to parents and from parents to children, respectively. The average durations of inter-turn pauses at turn transition from child to parent varied among the participants, ranging from 0.44 up to 0.61 s; in contrast, the average duration of pauses at turn transition from parents to children ranged from 0.48 up to 0.91 s. Aside from E01, the average duration of inter-turn pauses from children to parents was relatively shorter than that from parents to children. For English-speaking dyads, the coefficient of variation for pause duration during turn transition from parents to children was smaller than that during turn transition from children to parents. These results indicate that the pause duration during turn transition from children to parents was more variable and less stable than that from children to parents.

Table 2. The duration of inter-turn pauses at turn transition from children to parents

	E01	E02	E03	J01	J02	J03
Frequency	108	44	81	45	58	46
Max	1.97	2.46	2.43	1.52	1.50	1.50
Min	0.1	0.12	0.11	0.10	0.13	0.11
Average	0.5	0.61	0.44	0.48	0.46	0.49
SD	0.39	0.58	0.39	0.30	0.28	0.35
Coefficient of variation	0.78	0.96	0.88	0.62	0.61	0.72

Table 3. The duration of inter-turn pauses at turn transition from parents to children

	E01	E02	E03	J01	J02	J03
Frequency	90	45	102	56	47	45
Max	1.45	2.97	1.86	2.95	2.66	2.38
Min	0.10	0.11	0.10	0.10	0.11	0.12
Average	0.48	0.91	0.6	0.68	0.72	0.82
SD	0.32	0.72	0.45	0.6	0.56	0.56
Coefficient of variation	0.66	0.79	0.75	0.88	0.78	0.68

Figure 1 presents the cumulative relative frequency of pause durations for the child and parent in each dyad. Except for E01, the pause durations of children were relatively longer than were those of parents. In J1, for example, 93% and 76% of the pauses were between 0.1 and 1 s for the parent and child, respectively. Similarly, in E03, 90% and 84% of the pauses were 1 s or less for the parent and child, respectively. In contrast, for E01, the distribution of pause durations for the child was similar to that of the adult, with 90% and 92% of the pauses being 1 s or less for the parent and child, respectively.

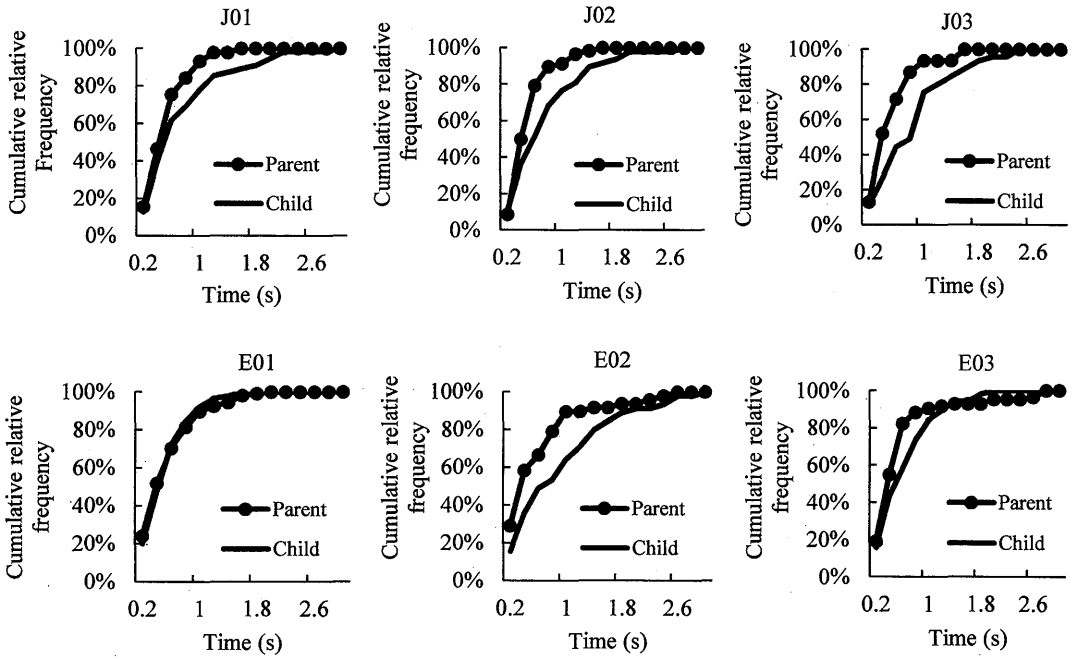

Figure 1. Cumulative relative frequencies of pause duration

The following is an example from the transcription of the conversation between an English-speaking child and her mother (E01). The pause durations were noted in brackets. The child was talking about an eye problem with her mother. She made a pause for about 0.7 s before answering question. Note that her answers typically contained grammatical and lexical mistakes. This example indicated that the child—in pausing for the appropriate duration—understood the rules of turn-taking when responding to questions.

Adult: What happened?
(0.66 s)
Child: I said eye tear
(0.23 s)
Adult: You got a tear?
(0.75 s)
Child: I can't read for anything.
(0.73 s)
Adult: You can't.

(Conversation, E01)

4. Discussion

The present study explored the distribution of pause durations in conversations produced by dyads of Japanese and English-speaking children and parents. Notably, the average duration of pauses at turn transition from children to parents and from parents to children was less than 1 s, regardless of the language background. Furthermore, for children, more than 70% of pauses were less than 1 s, while this rate was 90% for adults. As Jefferson (1989) noted, pauses of approximately 1 s are the "maximum of tolerance" in adult–adult conversations. The results suggest that children do use inter-turn pauses appropriately, although the duration of their pauses is relatively longer than that of adults. For English-speaking dyads, the pause duration during turn transition from children to parents was more variable and less stable than that from parents to children. It is possible that English-speaking parents altered the pause duration strategically when interacting with their children. It remains somewhat unclear whether language background influences pause duration. Future studies are needed to explore not only pause duration but also the discourse-functional aspects of each utterance.

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