Position of *Why* in Children's Clause Structure: Evidence from English and Japanese

Kanako Ikeda[1], Tomohiro Fujii[2], Kyoko Yamakoshi[1]
Ochanomizu University[1], Yokohama National University[2]

Introduction: This paper investigates the position of *why* in clause structure by examining children's naturalistic speech data in English and Japanese. By showing the frequency of negative *why*-questions and the rarity of negative questions with other *wh*s in children's natural speech data, we propose that the children are aware that *why* is attached high in the left periphery.

Background: It has been argued that *why* is base-generated in the left periphery in Italian, English and Japanese and that *why* behaves differently from other wh-phrases (Rizzi 1997, 2004, Shlonsky and Soare 2010, Stepanov and Tsai 2008, Ko 2005, Miyagawa 2017, a.o.) An asymmetry between *why* and other wh-phrases in negative questions can be used as one piece of evidence. Jackendoff (1972: 257) points out that negative questions exhibit an asymmetry between *why* and other wh-phrases as shown in (1-2).

(1)??What didn't Maxwell kill the judge with? (Jackendoff, 1972, p. 257)
(2) Why didn't Maxwell kill the judge?

The instrumental question (1) is worse than the reason one (2). According to Jackendoff (1972 : 254-258), (1) lacks a 'negative assertion' reading such as "Which weapon is not one that Maxwell killed the judge with?" and its only one available reading is one involving a negative presupposition, where a set of weapons Maxwell didn't use to kill the judge needs to be salient. Jackendoff suggests that such a negative presupposition is unusual and makes (1) unnatural. We assume that negative presuppositions are obtained by converting TP containing a *wh*-trace into a lambda expression with the corresponding variable.

If *why* is base-generated in the left periphery and TP contains no *wh*-trace, the negative presupposition does not arise: We do not expect that (2) requires a well-defined set of causes that didn't make Max kill the judge arises. (2) roughly means: "Maxwell didn't kill the judge, and why so?", where the *wh*-phrase does not interact with negation.

Wh-phrases in children's and mothers' speech: If children locate *why* in the left periphery and *why* leaves no trace, the negative presupposition does not arise in *why*-questions and we expect *why* co-occurs with negation more frequently than other *wh*s in children's natural speech data. We counted the number of negative *wh*-questions occurring in children's and their mothers' speech in one English and two Japanese CHILDES corpora (MacWhinney 2000): Adam (2;3 (i.e. 2 years 3 months old) - 4;10) for English, and Nanami (1;2-5;0) and Arika (3;0-5;0) for Japanese. In English, we examined questions containing *why*, *where*, *when*, *what* with *not*, *can't*, *didn't*. In addition, in English, we excluded *why*-questions expressing suggestions such as 'why not?'. In Japanese, we examined *naze/nande/doosite* 'why,' *doko* 'where,' *itsu* 'when' and *nani* 'what' with *nai* 'not-Pres' and *nakatta* 'not-Past.'

Results and Discussion: Firstly, we look at the results of the English-acquiring child, Adam, and his mother. Table 1 below shows the number of negative wh-questions in Adam's speech and his mother's speech:

Table 1: Co-occurrence of wh-phrases with negation in child and adult English

	why	*where, when, what*	Total
Adam (2;3 – 4;10)	64 (921)	1 (4429)	65 (5350)
Adam's mother	6 (528)	2 (3684)	8 (4212)

(Adam: χ^2 =299.028, p<.01; Adam's mother: χ^2 = 23.101, p<.01. The numbers in brackets indicate the total numbers of wh-questions of the relevant types.)

Table 1 indicates that Adam more often uses negative *why*-questions than negative *where/when/what*-questions. The differences in the rate of the occurrence of negation in Adam's *why*-questions and other *wh*-questions are statistically significant.

Next, let us turn to the results of the two Japanese children, Nanami and Arika, shown in Table 2 below. Their results show the same tendency as that of Adam:

Table 2: Co-occurrence of wh-phrases with negation in child Japanese

	Naze/nande/ doosite 'why'	*doko* 'where', *itsu* 'when', *nani* 'what'	Total
Nanami (1;2 – 5;0)	11 (179)	0 (938)	11 (1117)
Arika (3;0 – 5;0)	17 (477)	2 (1290)	19 (1767)

(Nanami: $\chi^2 = 52.084$, $p<.01$; Arika: $\chi^2 = 34.906$, $p<.01$. The numbers in brackets indicate the total numbers of wh-questions of the relevant types.)

As shown in Table 2, they occasionally use negative *why*-questions, while they hardly use negative *where/when/what*-questions. The differences in the rate of the occurrence of negation in Nanami's and Arika's *why*-questions and other *wh*-questions are also statistically significant.

Table 3 below shows the results of Nanami's mother and Arika's mother:

Table 3: Co-occurrence of wh-phrases with negation in adult Japanese

	Naze/nande/ doosite 'why'	*doko* 'where', *itsu* 'when', *nani* 'what'	Total
Nanami's mother	5(276)	1 (3138)	6 (3414)
Arika's mother	27 (392)	5 (1354)	32 (1746)

(Nanami's mother: $\chi^2 = 36.219$, $p<.01$; Arika's mother: $\chi^2 = 68.215$, $p<.01$. The numbers in brackets indicate the total numbers of wh-questions of the relevant types.)

As shown in Table 1 and Table 3, a similar pattern can be said to hold in adult English and Japanese. Mothers occasionally use negative *why*-questions (Adam's mother: 6/528, Nanami's mother: 5/276, Arika's mother: 27/392), whereas they rarely use negative *where/when/what*-questions (Adam's mother: 0/409, 0/194, 2/3081, Nanami's mother: 1/821, 0/17, 0/2300, Arika's mother: 1/460, 0/31, 4/863). The differences in the rate of the occurrence of negation in *why*-questions and other *wh*-questions are also statistically significant in the mother's speech.

To conclude, we suggest these results show that the higher attachment of *why/naze* 'why' makes children use *why* with negation more frequently than other *wh*s. Our results provide a piece of evidence that English and Japanese children, like adults, locate *why* higher than other *wh*-phrases, in the left periphery of clause structure.

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