窪田美穂子

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Roles and Effects of Parent-Initiated Repair in Language Development

——A Case Study of Four Japanese Children

言語発達における親による子どもの発話訂正とその役割と効果
——4名の日本語を母語として習得中の子どもの事例

●抄録

　子どもの母語習得において主な言語情報源は母親を中心とする周囲の大人の発話であるが、入力できる情報は質量ともに限られておりかつ言い間違えや中断など欠陥がある貧弱な内容であることが多い。しかしそうした貧困な言語刺激からでも、かつ子供の言語使用が正しくないと大人が知らせる否定証拠がなくても、子どもはひとりでに規則性を見出して個別言語の文法を正しく習得できるようになる。その点から、主に普遍文法・生成文法理論においては母語の文法の習得を可能にするメカニズムとして人間の脳には生得的に言語獲得装置が存在すると仮定し、その装置を活性化することにより母語の言語構造に依存した文法を構築できると主張している。

　しかし、英語を中心とした研究の中には、大人（特に親）は常に子どもの発話や意味・意図をチェックしており会話を継続するよう子どもに発話を促す傾向があり、大人が子どもの言い間違いを訂正すると、子どもは大人の言った正しい用法を即座に真似して言う傾向があると主張している。しかし、子どもは訂正されてもしばらく会話を続けるうちに同じ間違いを言い、大人からの否定証拠の提示は子どもの間違い訂正と正しい用法への知識の切り替えに有効とは言えないという英語の研究もある。これらの先行研究を踏まえて本研究では、日本語を習得中の子ども４名の２歳または３歳から４歳までの母親との会話データを分析し、親が子どものどんなタイプの誤りを指摘して修正するかあるいは看過するか、子どもは修正されてどう反応するかを検証した。結果、子どもがどの月例でも、親が訂正する子どもの誤用は特に音韻的原因（母音や子音の交替など）や語彙的要因（昨日→さっき、いちこ→いっこ「一個」など）文法的要因（動詞・形容詞の派生、能動態と受動態など）に顕著であった。しかし、親は子どもの誤用に気づいても発話意味や意図を理解して訂正をせず意味を確認しながら正用に言い換えて対話を続ける傾向が最も強かった。とりわけ格助詞（主格「が」、目的格「を」「に」）は省略可能であるためか親は訂正せず意味をくみ取る傾向が高かった。子どもは親からの誤りの指摘があってもほとんど訂正せず会話を続け、いったん親の示した正用を真似て言い直した後も会話が続くうち再び前の誤用を言う傾向があった。また、親は意味や発音が不明瞭な場合は「え？」「何って？」など明確化を要求することがあるが、子どもは自己訂正せず会話を続けている傾向が強かった。

　以上の結果から、生成文法理論などが主張するように、子どもの発話に誤りや不明瞭な点があっても、否定証拠の提示の頻度そのものが低いゆえに子どもが間違いを指摘される機会は少なく、否定証拠が提示されても子どもに間違った文法理解を意識的に修正させる効果は薄いとみられる。親は間違いを訂正したとしても、子どもにとってはその言い方は正しくないゆえ言ってはいけないという警告的な効果はなく、遊びに興じている時に何度も訂正されるといら立ちかえって誤用を使い続ける反抗的な態度を取ったり、自分の発話が自分の観点で適切なまたは好んで用いているという発想から訂正されても誤用を再度使用することも想定される。多くの先行研究と異なる結果の要因を日本語の言語体系からみた場合、他言語の研究（英語・仏語・ヘブライ語など）からみても、動詞や名詞の派生屈折での音韻形態的な誤用を親がすぐ訂正して子どもも即座に訂正する傾向が強い他言語（主にヨーロッパ系言語）に比べて、日本語は人称・性・数での形態素変化はなく、動詞の派生などで時制の誤用があっても訂正される傾向は低く、むしろ会話で親と子どもが共有するトピックや発話意味を重視して間違いを看過して会話を続行する傾向が強くみられた。よって、本研究では日本語では親から子どもへの否定証拠の提示が弱く頻度が低いことから、文法発達からみる生得的な言語獲得装置の生得性は検証できないが子どもは大人からの誤用の指摘からではなく自分から誤用を見出し母語の文法習得へ軌道修正を４歳以降もしていくであろうことが想起される。

1. Introduction: A Review of Theoretical Insights into Negative Evidence

On both theoretical and empirical grounds, first language acquisition has long been seen as typifying the inductive learning and reasoning process. In other words, by trial and error, a child infers and generalizes rules of a first language by interacting with people and hearing a variety of linguistic instances. To facilitate conversation, adults speak to the child, using simple wording to comment on their speech. According to McLean and McLean (1999), adults presume not only what they *expect* the child to say and mean, but also what the child *actually* says and means spontaneously. Particularly, adults pay attention to incorrect child forms "that they feel the child is ready and able to manage or those that are truly important in terms of meaning" (McLean and McLean 1999: 66). Thus, adults initiate error correction or repair [1], as they gradually "adjust language levels so that it is just beyond the child's current level" (ibid., p.67). Adults, especially mothers, deliberately check on the child's word usage and meanings in consideration of his/her age and linguistic progress.

Within a theoretical framework of syntactic and morphological development, adults' error corrections for the child, or adult-initiated (i.e., other-initiated) repair, have been discussed as examples of direct negative evidence, which directly pinpoint an error in the child's language use. It seems quite natural to assume that error correction helps the child immediately notice his/her rule misapplication, discard incorrect rules, and ultimately accept correct ones. However, linguistic input from adults is not always a reliable or convincing source. Adults sometimes make errors too, pause midway, or give no specific indication of what is wrong with the child's speech. If adults were to spot all grammatical errors, they would be too busy correcting them to explain why they are wrong. Accordingly, many theorists refute the possibility and necessity of negative evidence. Rather, they posit that innate properties of the human mind are responsible for language acquisition. Among these skeptics are nativists (i.e., proponents of Universal Grammar (UG)), and those who champion the innateness of the Language Acquisition Device (LAD) (e.g. Chomsky 1981; Pinker 1984). They claim that poverty of the stimulus, (i.e., linguistic input which is limited in quality and/or quantity) does not affect the child's first-language acquisition. Regardless, they claim, he or she is fully capable of discovering the structure-dependent rules which are the basis of the grammar required for first-language development (for details, see Clark 2009; Bohannon & Stanowicz 1989).

2. Previous Research on How Adults Correct Children's Errors

Contrary to UG nativists, some researchers claim that "the 'no negative evidence' assumption is unfounded" (Saxton 2017: 104). For example, Saxton (1997) proposes the Contrast Theory of negative input. In this formulation, juxtaposition of errors with correct forms helps the child notice the latter, and discard the former. In Saxton's experiment on novel irregular past tense forms of English, adults immediately corrected errors of 36 five-year-old children by contrasting wrong forms with correct ones. Children receiving negative evidence corrected their past-tense errors more often than those receiving positive evidence or correct examples. Saxton thus asserts that adult feedback with contrasts helps children focus on both correct and incorrect forms, ultimately rejecting the latter. Similarly, Chouinard and Clark (2003) examined the spontaneous speech of three English-acquiring and two French-acquiring children. This information was taken from the Child Language Data Exchange System (CHILDES) database (MacWhinney 2000). The authors found that adults made reformulations or corrections by identifying an error and contrasting it with correct wording. They did this with similar frequency across formal or grammatical error types (phonological, morphological, lexical,

and syntactic). Adults reformulated significantly more often than they replayed or repeated error-free forms. However, reformulation decreased significantly with the child's age. Children attended to such reformulations, explicitly repeating them in their next turn, thereby demonstrating their understanding. However, they explicitly rejected reformulations created by adults' misunderstandings.

However, results of several studies on the effects of adult-initiated repair on children's speech do not confirm the effects of negative evidence on children. For instance, Bohannon and Stanowicz (1988) investigated in naturalistic settings how adults reacted to children's syntactic, phonological, and semantic errors. They found that adults were more likely to repeat well-formed sentences verbatim than ill-formed ones. Adults were more likely to modify, repeat, and ask for clarification of sentences. If a child's preceding sentences contained only one syntactic or phonological error, adults tended to use correct syntactic or phonological forms in their immediately subsequent sentences. However, this study does not specify how the children reacted to adult feedback. Kubota (2010) also examined real-life speech data to see how children acquiring English and Japanese regarded parental nonspecific clarification requests (NSCRs) (e.g. "You what?" "Huh?"). Did they view these requests as negative signals of communication breakdown, and/or linguistic errors? It was found that parents most often gave NSCRs to ask what children meant in their error-free utterances. In contrast, around 30 percent (or fewer) of parental NSCRs happened when children's original utterances included formal errors. These results counter Sokolov and Snow (1994), who claim that "the universally greater possibility that clarification questions or amended repetitions follow ill-formed child utterances while normal conversational responses follow well-formed child utterances" (p.49). In Kubota, each child's proper self-correction rate was under six percent of their total utterances. Adults identified other errors, which children removed from their subsequent responses and usually left uncorrected. Thus, it seems that the children did not regard NSCRs as a signal of parental error-detection and a request for self-correction. Rather, their parents focused on utterance meanings instead of forms. Accordingly, children remained unaware of their formal errors. Kulinich, Royle, and Valois (2014, forthcoming) examined four-year-old children's errors and parental feedback in Russian inflectional morphology. In the elicitation tasks, children who overregularized verb inflection were divided into two groups. One group received three types of adult feedback (correction, clarification questions, and repetition). The other group received no such feedback. Finding no significant differences between the groups and the feedback types, Kulinich, Royle, and Valois concluded that negative feedback, or parental correction, was not a driving force in language acquisition. As mentioned above, Chouinard and Clark (2003) and Saxton (2007) found that adult-initiated repairs and reformulations seem to assist children in reanalyzing their current understanding of language, or their metalinguistic analysis. In contrast, Kubota (2001, 2003, 2006, 2010) and Kulinich, Royle, and Valois (2014, forthcoming) did not prove the effectiveness of adult feedback as a trigger for children's metalinguistic reanalysis.

3. Adult-Child Talk in Japanese

With children, mothers switch to speaking in a manner called child-directed speech, baby talk, or "motherese." This specific speech style includes many aspects of phonetics, prosody, syntax, and lexicon. Among them are qualities such as simplicity, clear-cut distinctions, and multiple repetitions (e.g. Clark E. V. 2009; Clark H. H. 2014; Ito 1990; Murase, Ogura, & Yamashita 1992, 1998; Murata 1968, 1984; Ogura, Yoshimoto, & Tsubota 1997, Okubo 1967a, 1967b; among others). These features allow children to easily guess what mothers are talking about. Many studies on motherese have elucidated that there are cross-linguistic and cross-cultural varieties of adult speech toward young children. For example, Fernald and Morikawa (1993) found that cultural differences in interaction styles and beliefs influenced American and Japanese mothers' speech to children who were 6, 12, and

19 months old. On one hand, Japanese mothers used far more onomatopoeia and spoke gently in motherese for a longer period than their American counterparts. On the other hand, American mothers encouraged their children to be independent, drawing their attention through language. Meanwhile, Japanese mothers produced easy-to-imitate sounds and encouraged children to be mutually dependent. They were attuned to children in an emotional manner, rather than a teaching manner. Murase, Ogura, and Yamashita (1992, 1998) submit that, compared to English-speaking caretakers, Japanese caretakers used a wider variety of baby talk, child-specific words, and onomatopoeia. However, by the time children were 22 to 26 months of age, over half of Japanese mothers had begun using adult words more often than child words. Ogura, Yoshimoto, and Tsubota (1997) analyzed two Japanese children's transition from baby words to adult words between 21 and 24 months of age. Their mothers had adjusted their use of baby words according to the children's linguistic and cognitive development. These mothers tended to use more baby words, especially action words, in order to establish affective communication with their children. These studies indicate that, at around two years of age, children start to try out adult words. These words sound new; thus, children make errors based on rigid and decontextualized rules of adult grammar. If Japanese mothers repair children's errors with easy-to-follow examples (retaining affective moods of conversation rather than simply teaching correct word use), children will not feel compelled to correct their errors. Consequently, they will develop correct word usage through mutual dependency.

4. Hypotheses

Most studies discussed in Chapter 2 address the rules of grammar to which adults expect children to conform. Parents usually teach these skills through error correction. Thus, one may imagine that Japanese mothers repair children's errors in syntax, phonology, lexicon, and morphology similarly to the English mother-child dyads in previous studies. Seemingly, Japanese mothers would repair errors if they detected a discrepancy between children's mistakes and the correct usage of grammatical forms (such as tense, case assignment, and phonology). However, the research on motherese (described in Chapter 3) indicates that mother-initiated repair seems to reflect varying maternal communicative styles. That is to say, it describes how different mothers guide children through an exchange of information on a topic. It is notable that (compared to mothers whose first language is English) Japanese mothers tend to repair their children's errors for utterance meaning and intention, rather than for formal or grammatical correctness. Or, as argued by Fernald and Morikawa (1993), Japanese mothers may value mutual dependency so much that they rarely repair errors or request correct word usage. Moreover, it should be examined whether children can realize that their word usage contains errors, thus differing from correct forms. Children's acceptance of correct usages, and cessation of repeated errors, would suggest that negative evidence is effective for children's reanalysis of language use (at least in the ongoing flow of conversation). If mothers do not pinpoint errors, then children will remain unaware of negative evidence and correct word usage. Moreover, children may ignore mothers' explanations of errors and repairs. Absence of a response would suggest that negative evidence is an ineffective (or hardly ever effective) trigger for children's linguistic reanalysis.

5. Data

This study used Japanese longitudinal data from the MiiPro Corpus (Miyata & Nishisawa 2009, 2010; Nishisawa & Miyata 2009, 2010). It was compiled into the Child Language Data Exchange System (CHILDES) database (MacWhinney 2000), and subsequently utilized in JCHAT, the Japanese version

(Oshima-Takane, MacWhinney, Shirai, Miyata, & Naka 1998). This corpus consists of mother-child spontaneous speech at home, recorded weekly from 1;2 to 3;0 [2], and monthly or bi-monthly from 3;0 to 5;0. Each recording was approximately 70 minutes long. An outline of the data is below:

1. Arika (female): 26 files were randomly chosen from each month out of the 55 total files for quantitative adjustment to the other datasets;
2. Nanami (female): 30 files (as with Arika) were randomly chosen from each month from 2;0 out of the total of 55 files for quantitative adjustment to the other datasets;
3. Asato (male): 38 files in total; and
4. Tomito (male): 19 files in total.

Analysis was performed on Arika and Tomito's transcripts from ages 3;0 to 4;11 and on Asato and Nanami's transcripts from ages 2;0 to 4;11. Except for Tomito, most of the sound data and movies are accessible online. Each was used to check the dyads' phonological features in error-repair transactions. Table 1 shows the participants' average MLU (Mean Length of Utterances: the average number of morphemes per utterance) at each stage. The children's ages all lie close to the mean, at three and four years of age (N = 4; SD = 0.34 at 3;0 – 3;5, SD = 0.33 at 3;6 – 3;11, and SD = 0.32 at 4;0– 4;11). However, at two years of age, Nanami shows more precocity than Asato (N = 2; SD = 0.79). Their mothers are also close to each other in MLU (N = 4; SD = 0.25 for Asato's and Nanami's mothers from two to four years of child age; SD = 0.44 for Arika's and Tomito's mothers from three to four years of child age). In sum, from two or three to four years of age, there are no significant individual differences in all participants' MLUs.

Table 1. Children's and Mothers' Average MLUs per Stage Through all MiiPro Sessions.

Age (year; month)	2;0 - 2;5	2;6 - 2;11	3;0 - 3;5	3;6 - 3;11	4;0 - 4;5	4;6 - 4;11
Asato	1.84	2.03	2.17	2.33	2.8	2.42
Nanami	2.77	3.58	2.54	2.72	2.84	3.07
Arika	N/A	N/A	2.91	3.04	3.34	2.82
Tomito	N/A	N/A	2.84	2.38	2.57	2.45
Asato's Mother	3.18	3.28	3.32	3.35	3.61	3.65
Nanami's Mother	2.96	3.00	3.14	3.07	3.19	3.72
Arika's Mother	N/A	N/A	2.87	3.06	3.02	3.97
Tomito's Mother	N/A	N/A	4.00	3.57	3.64	3.70

6. Error and Repair Categorization

In JCHAT (the Japanese CHILDES format) (Oshima-Takane, et. al. 1998), certain errors were tagged with a bracketed asterisk [*] in terms of adult usage. They were used for error detection via the search engine KWAL (Key Word and Line) (MacWhinney 2019). However, sound sources show that some utterances with the code [*] have clear and near-correct articulation. They are easily understood, so they cannot be identified as purely erroneous utterances. Thus, these utterances were excluded from the analysis.

Based on Japanese grammar in terms of 1) sound-based (phonological); 2) meaning-based (lexical-semantic); and 3) form-based (morpho-syntactic) characteristics, mother-initiated repairs were classified into the following types:

1. Formal and meaning repairs:
   • Phonological: Mispronunciation and unclear articulation;
   • Lexical-semantic: Errors in existing words that differ in meaning; and
   • Morpho-syntactic: Errors in case particles, transitivity, verb and adjective negation, and inflectional morphemes (e.g., tense, aspect, and mood)

2. Non-specific clarification questions, requesting repetition of the whole preceding speech:
   (e.g., *Eh?* "Huh?" *Nan tte?* "You what?")

3. Move-on: Disregard, overlook, no comment, and change of topic.

The following are the types of child responses to mother-initiated repairs:
   • Uptake: Following a repair, and saying it correctly (as expected);
   • Failure: Unsuccessful repair, and repetition of erroneous speech;
   • Agreement: Yes-type answers, and no subsequent response;
   • Disagreement: No-type answers, and rejecting a repair (due to a mother's misinterpretation); and
   • Move-on: Disregard, no comment, change of topic.

The analysis excluded child-initiated repairs without maternal intervention, and unconfirmed or unintelligible speech (followed by the code [?] and coded as xxx and yyy) from both participants.

Table 2. Maternal Responses to Children's Errors
       (see page 24)

# 7. Results and Discussion 1 : Mothers' Repairs

Table 2 shows that, in accordance with age and language development, each child's number of errors decreased. In almost all error types (and child age brackets), each mother most frequently responded to their children's errors with the move-on tactic. The ratios of mothers' responses to children's errors are shown in Figure 1 (see page 25).

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Table 2. Maternal Responses to Children's Errors

		2;0 - 2;5	2;6 - 2;11	3;0 - 3;5	3;6 - 3;11	4;0 - 4;5	4;6 - 4;11	Total
Arika	Phonological			Total 56	Total 30	Total 26	Total 15	127
	Repaired			16	7	10	1	34
	Clarification			1	0	1	0	2
	Move-on			39	23	15	14	91
	Lexical-Semantic			Total 48	Total 67	Total 37	Total 8	160
	Repaired			17	16	1	4	38
	Clarification			4	3	0	0	7
	Move-on			27	48	36	4	115
	Morpho-Syntactic			Total 106	Total 97	Total 84	Total 39	326
	Repaired			10	6	7	2	25
	Clarification			5	1	0	0	6
	Move-on			91	90	77	37	295
Asato	Phonological	Total 6	Total 13	Total 7	Total 13	Total 2	Total 0	41
	Repaired	4	2	2	8	1	0	17
	Clarification	1	0	1	0	1	0	3
	Move-on	1	11	4	5	0	0	21
	Lexical-Semantic	Total 7	Total 22	Total 11	Total 17	Total 11	Total 1	69
	Repaired	2	7	2	5	6	1	23
	Clarification	1	1	1	1	0	0	4
	Move-on	4	14	8	11	5	0	42
	Morpho-Syntactic	Total 27	Total 39	Total 21	Total 17	Total 13	Total 1	118
	Repaired	8	7	3	3	1	0	22
	Clarification	0	2	0	0	0	0	2
	Move-on	19	30	18	14	12	1	94
Nanami	Phonological	Total 14	Total 14	Total 4	Total 1	Total 1	Total 0	34
	Repaired	10	11	3	0	0	0	24
	Clarification	2	1	0	0	0	0	3
	Move-on	2	2	1	1	1	0	7
	Lexical-Semantic	Total 13	Total 11	Total 1	Total 3	Total 2	Total 4	34
	Repaired	7	2	0	3	0	0	12
	Clarification	1	1	0	0	1	0	3
	Move-on	5	8	1	0	1	4	19
	Morpho-Syntactic	Total 34	Total 37	Total 0	Total 1	Total 1	Total 0	73
	Repaired	11	6	0	0	0	0	17
	Clarification	3	3	0	0	0	0	6
	Move-on	20	28	0	1	1	0	50
Tomito	Phonological			Total 6	Total 2	Total 2	Total 0	10
	Repaired			2	0	1	0	3
	Clarification			0	0	0	0	0
	Move-on			4	2	1	0	7
	Lexical-Semantic			Total 16	Total 7	Total 5	Total 6	34
	Repaired			3	0	1	2	6
	Clarification			0	0	0	0	0
	Move-on			13	7	4	4	28
	Morpho-Syntactic			Total 37	Total 26	Total 14	Total 5	82
	Repaired			4	2	0	0	6
	Clarification			0	0	0	0	0
	Move-on			33	24	14	5	76

Notes: Mothers' responses are classified into three error types (phonological, lexical-semantic, and morpho-syntactic). Each error type has three response types: 1) repair (repairing children's errors); 2) clarification (giving non-specific clarification questions: e.g., *Nan tte?* "You what?"); and 3) moving on (not referring to the errors, and continuing conversation).

Figure 1. The Ratio (%) of Mothers' Responses to Children's Errors
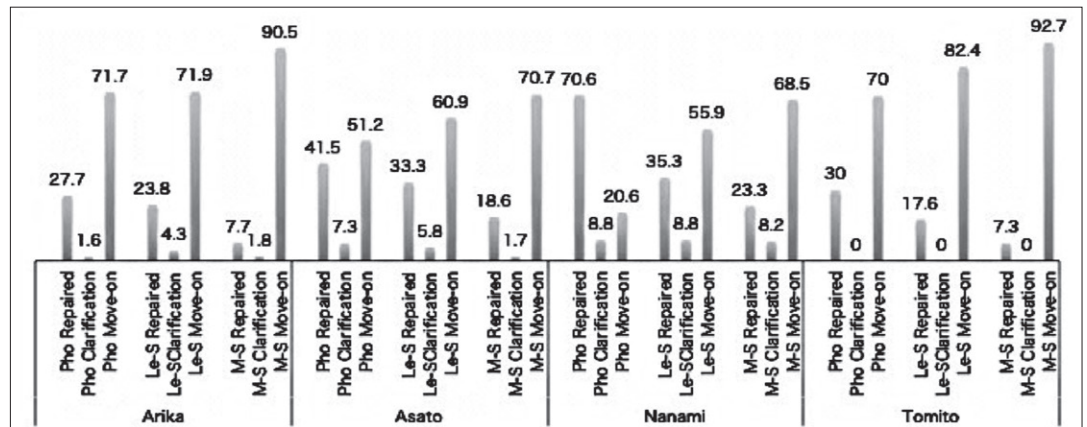
Notes: Pho = Phonological, Le-S = Lexical-semantic, M-S = Morpho-syntactic

One-way ANOVA testing shows that move-on is significantly the most frequent maternal response (X2 (2) = 22.19, p < .05, one-tailed) by all mothers, regardless of child error type. As Table 2 and Figure 1 depict, 70 percent of Nanami's phonological errors were repaired by her mother. However, less than 50 percent of errors were repaired by all the mothers. This result is a striking contrast to Chouinard and Clark (2003), who argue that as many as two-thirds of English and French errors were reformulated by mothers. Chouinard and Clark assert that adult reformulations worked for effective learning among children. However, results of the present Japanese study suggest that maternal repairs were not frequent enough to trigger children's error discovery. This limited the sort of contrastive learning through which children discover how to discard errors, and accept correct examples. It seems that mothers often allowed the children to hold the floor, guessing what they meant without bringing up their errors. It is not clear, however, whether this is a culture- or language-specific tendency among Japanese mothers. Meanwhile, Fernald and Morikawa (1993) noted Japanese mothers' empathy-sharing mood, in contrast with the language-teaching mood of their American counterparts.

Compared to previous studies (Kubota 2000a, 2000b, 2001, 2003, 2006, 2010 among others), mothers' non-specific clarification requests (NSCRs) were minimal (e.g., *Eh?* "Huh?" *Nan tte?* "You what?"), although only erroneous utterances were analyzed in this study. Clarification questions are frequently made in side sequences (Chouinard and Clark 2003; Jefferson 1972; Schegloff 1972), in which a speaker suspends conversation to confirm the hearer's meaning (or understanding) before returning to the topic. Rather than merely asking the children what they said, all mothers primarily used confirmation questions as repairs, revising original erroneous aspects. The sparseness of NSCRs suggests that mothers listened to children carefully, easily gleaning their intended meanings.

There were only a few minor differences between mothers' responses to their children's error types. Arika, Asato, and Tomito's mothers tended to leave their children's errors unrepaired, continuing to discuss the ongoing topic regardless of error types or the children's ages. These mothers seem to have paid more attention to what children meant, rather than what they said (or should have said). Thus, they allowed their children to express themselves freely, regardless of odd wording. By contrast, Nanami's mother repaired all of her error types, especially when she was two years of age. Errors and repairs became rare after age three. However, this was mainly due to the time lag in recording, rather than language development.

Of all error types, mothers repaired their children's phonological errors most frequently. At three years of age, Nanami's phonological errors were as frequent as Arika's. In general, during the first half of their second year, a child begins to produce two-word utterances. These expressions serve as the

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beginning of syntax, as the lexicon develops by using more adult words and fewer baby words (Ogura, Yoshimoto, and Tsubota, 1997). In addition, a two-year-old's articulatory system is not fully developed, causing a variety of phonological errors in the same area of articulation (e.g., confusing a stop /t/ with a fricative /s/ of voiceless alveolar consonants; *takana for sakana 'fish'). Thus, it is likely that the mothers observed children's articulatory trouble and demonstrated correct pronunciation. This is assumed to have caused Nanami's and Arika's mothers, in particular, to repair their mispronunciations rather than letting them pass and moving on.

The second-most frequent repair type was lexical-semantic, followed by morpho-syntactic repairs. Most lexical-semantic errors resulted from children's word-referent mismatch. In some cases, these mismatches reflected their strong preference for the wrong label over the correct. For example, Arika's insistence on calling a necklace doresu 'dress' persisted. Despite her mother's repeated reformulations, or repair by contrastive explanation, she continued using the mismatched word. Regarding morpho-syntactic errors, all mothers repaired children's incorrect verb inflections (i.e., tense and mood) with moderate frequency. Yet, they hardly ever requested the children to use the correct verb forms. All the mothers tended not to repair errors with particles (e.g., no, ga, ni, o, e, de). In particular, the genitive case particle no is easily overgeneralized by two-year-olds, who misapply the phrase noun + no to *adjective + no (Clancy 1985, Ito 1990, Murasugi 1991). They are also apt to misuse no as a subject case particle in the matrix predicate (Sawada, Murasugi and Fuji 2010). Most of the time, the mothers in this study did not repair such errors, possibly because most missing and omitted particles are recoverable from utterance structure and meaning. Even though they heard particle errors, the mothers may have correctly guessed the case relationship (e.g., subject-object, subject-location) in canonical word order and context.

In sum, there were very few cases in which mothers explained why children's word usage was wrong (and what they ought to say instead). Moreover, they did not force their children to stop making errors and say the correct words or phrases. Therefore, the children were likely unaware of their errors, and continued misunderstanding the issues related to their current grammar. It seems that none of the mothers viewed checking up on grammatical correctness, or errors in children's conversation, as the main purpose of communication. Rather, their goal was to assist children in taking turns, and talking as much as possible to share and expound upon conversational topics. On some occasions, mothers tried contrastive instructions, but their attempts were unsuccessful (as the children continued making the same errors). This implies that the sparseness of maternal repairs provided insufficient negative evidence to enable children to correct their misunderstanding of linguistic rules.

8. Results and Discussion 2 : Children's Responses to Mothers' Repairs

Tables 3, 4, 5, and 6 show Arika, Asato, Nanami, and Tomito's responses to maternal repairs, respectively. Overall, these children's response patterns bear a close resemblance to their mothers' patterns, as analyzed above. The most frequent response pattern is move-on, in which children did not conform to maternal repairs. Rather, they continued speaking on the same or different topics. The ratio of move-on responses to all response types of maternal repairs is statistically significant (Arika, X^2 (4) = 6.05, p < .05; Asato, X^2 (4) = 4.00, p < .05; Nanami, X^2 (4) = 4.41, p < .05, all one-tailed). Tomito's responses are much too sparse for statistical analysis (Tomito, X^2 (4) = 3.14, p = .07, one-tailed).

Table 3. Arika: Mother's Repairs and Child's Responses

Arika	3;0 - 3;5		3;6 - 3;11		4;0 - 4;5		4;6 - 4;11		Total
Phonological repair	Total	16	Total	7	Total	10	Total	1	34
Uptake		2		1		0		0	3
Failure		3		2		0		0	5
Agreement		3		1		1		0	5
Disagreement		0		0		0		0	0
Move on		8		3		9		1	21
Lexical-sem repair	Total	17	Total	16	Total	1	Total	4	38
Uptake		4		5		0		0	9
Failure		6		4		0		1	11
Agreement		5		1		0		1	7
Disagreement		0		1		0		0	1
Move on		2		5		1		2	10
Morpho-syn repair	Total	10	Total	6	Total	7	Total	2	25
Uptake		1		0		0		0	1
Failure		1		0		1		0	2
Agreement		5		2		1		0	8
Disagreement		0		0		0		0	0
Move on		3		4		5		2	14

Table 4. Asato: Mother's Repairs and Child's Responses

Asato	2;0 - 2;5		2;6 - 2;11		3;0 - 3;5		3;6 - 3;11		4;0 - 4;5		4;6 - 4;11		Total
Phonological repair	Total	4	Total	2	Total	2	Total	8	Total	1	Total	0	17
Uptake		0		1		0		1		1		0	3
Failure		1		0		1		5		0		0	7
Agreement		0		0		1		0		0		0	1
Disagreement		0		0		0		0		0		0	0
Move on		3		1		0		2		0		0	6
Lexical-sem repair	Total	2	Total	7	Total	2	Total	5	Total	6	Total	1	23
Uptake		0		1		1		1		1		1	5
Failure		0		1		0		0		3		0	4
Agreement		0		0		0		4		2		0	6
Disagreement		0		1		0		0		0		0	1
Move on		2		4		1		0		0		0	7
Morpho-syn repair	Total	8	Total	7	Total	3	Total	3	Total	1	Total	0	22
Uptake		2		1		0		0		1		0	4
Failure		0		0		1		0		0		0	1
Agreement		0		3		1		1		0		0	5
Disagreement		0		0		0		0		0		0	0
Move on		6		3		1		2		0		0	12

Table 5. Nanami: Mother's Repairs and Child's Responses

Nanami	2;0 - 2;5		2;6 - 2;11		3;0 - 3;5		3;6 - 3;11		4;0 - 4;5		4;6 - 4;11		Total
Phonological repair	Total	10	Total	11	Total	3	Total	0	Total	0	Total	0	24
Uptake		1		2		1		0		0		0	4
Failure		5		2		1		0		0		0	8
Agreement		1		1		0		0		0		0	2
Disagreement		0		0		0		0		0		0	0
Move on		3		6		1		0		0		0	10
Lexical-sem repair	Total	7	Total	2	Total	0	Total	3	Total	0	Total	0	12
Uptake		1		0		0		3		0		0	4
Failure		1		0		0		0		0		0	1
Agreement		1		2		0		0		0		0	3
Disagreement		0		0		0		0		0		0	0
Move on		4		0		0		0		0		0	4
Morpho-syn repair	Total	11	Total	6	Total	0	Total	0	Total	0	Total	0	17
Uptake		1		0		0		0		0		0	1
Failure		0		0		0		0		0		0	0
Agreement		3		2		0		0		0		0	5
Disagreement		0		0		0		0		0		0	0
Move on		7		4		0		0		0		0	11

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Table 6. Tomito: Mother's Repairs and Child's Responses

		3;0 - 3;5		3;6 - 3;11		4;0 - 4;5		4;6 - 4;11		Total
Tomito	Phonological repair	Total	2	Phonological repair	Total	0	Phonological repair	Total	1	Phonological repair	Total	0	3
	Uptake		1	Uptake		0	Uptake		1	Uptake		0	2
	Failure		0	Failure		0	Failure		0	Failure		0	0
	Agreement		0	Agreement		0	Agreement		0	Agreement		0	0
	Disagreement		0	Disagreement		0	Disagreement		0	Disagreement		0	0
	Move on		1	Move on		0	Move on		0	Move on		0	1
	Lexical-sem repair	Total	3	Lexical-sem repair	Total	0	Lexical-sem repair	Total	1	Lexical-sem repair	Total	2	6
	Uptake		1	Uptake		0	Uptake		1	Uptake		1	3
	Failure		1	Failure		0	Failure		0	Failure		0	1
	Agreement		1	Agreement		0	Agreement		0	Agreement		0	1
	Disagreement		0	Disagreement		0	Disagreement		0	Disagreement		0	0
	Move on		0	Move on		0	Move on		0	Move on		1	1
	Morpho-syn repair	Total	4	Morpho-syn repair	Total	2	Morpho-syn repair	Total	0	Morpho-syn repair	Total	0	6
	Uptake		0	Uptake		1	Uptake		0	Uptake		0	1
	Failure		2	Failure		0	Failure		0	Failure		0	2
	Agreement		0	Agreement		0	Agreement		0	Agreement		0	0
	Disagreement		0	Disagreement		0	Disagreement		0	Disagreement		0	0
	Move on		2	Move on		1	Move on		0	Move on		0	3

Notes: Mothers' repairs are based on children's phonological, lexical-semantic, and morpho-syntactic error types. Children's responses to the mothers' repairs are as follows: 1) uptake (proper repair); 2) failure (making an error again); 3) agreement (only giving a yes-type answer); 4) disagreement (only giving a no-type answer); and 5) move-on (continuing conversation without following the repair).

Move-on responses were most frequent across children's ages and error types. Agreement answers such as *Un* "Yeah," and failures to repair, were the second-most frequent responses across error types. This was especially true of Arika at three years of age. The children did have some uptake responses (through which they accepted and imitated repairs). However, for most error types, uptake frequency was lower than failure, agreement, and move-on. There were very few disagreement responses, which implies that mothers' careful and swift checks on the children's speech avoided misunderstandings. Relating to error types, Nanami and Asato tended to fail at repairing phonological errors. Rather (partly owing to underdeveloped articulatory systems, as discussed above) they continued to mispronounce some consonants. The very low rates of uptake and agreement responses, and the very high rates of move-on responses, call into question children's understanding of correct usage. That is to say, it is unclear whether children really understood that they had erred, or felt the necessity of correct usage. Unlike classroom environments (with repeat-after-me instructions), mothers rarely required the children to correct their errors, and repeat correct word usage. As seen in Figure 1, maternal repairs include confirmation questions. In these repairs, mothers turned repaired utterances into questions to confirm children's intentions. Following these questions, children simply made an agreement response without imitating the repaired utterance (as they realized that the mothers understood their intended meaning).

Based on the following reasoning, Chouinard and Clark (2003) argue that English- or French-acquiring children actually did absorb adult reformulations: 1) they explicitly repeated reformulations (i.e., repairs) in their next turn; 2) they acknowledged the reformulations; and 3) they explicitly rejected reformulations when adults misunderstood them. However, it may be that children's acknowledgment merely shows that their intended meanings (and not their forms) were understood by adults. That is to say, regardless of whether their forms were correct, adults were able to grasp what children were trying to say. Also, in the MiiPro data, mothers confirmed that the four children gave acknowledgment responses (e.g., *Un* "Yeah"). Yet, in some cases, they continued making the same errors. Chouinard and Clark report that as many as two-thirds of all errors were reformulated. However, in two of the three English-acquiring children, and both French-acquiring children, the most frequent responses were a bare continuation, or simply proceeding with the conversation. These responses accounted for more than half of their errors. This mirrors the dominance of move-on

responses in the Japanese results. Since Chouinard and Clark do not discuss this move-on response at length, it is debatable whether those children really "can not only detect differences between their own utterance and the adult reformulation but that they make use of that information (2003: p. 666)." The results of the present Japanese study do not confirm the effects of maternal input on error detection or grammar reanalysis.

Another question is whether Japanese children could actually recognize errors when their mothers elucidated correct-incorrect contrasts, as in the following example: "You said X. That's wrong. This is X. This is Y. Y is correct. Say Y." In the Japanese data, there are several situations in which children persisted in errors even after the mothers rejected said errors, and subsequently presented the correct usage. The children seem to have got irritated and felt disturbed when they were absorbed in playing with toys and their mothers corrected their words. That situation may have led the children to diobey repeated repair. Although the children knew that their word choices were wrong (or sounded wrong), they continued to use them as THEIR words or creations. This tendency was noticeable in Arika and Asato. For example, as discussed in Chapter 7, Arika kept calling a dress nekkuresu 'necklace'. This lexical-semantic error endured despite her mother's repeated repair. Another example (1) shows that at 2;10.28 Asato reiterated the wrong word *Tookaihonsen as a lexical-semantic error, possibly conflating two existing words (Tookaidooshinkansen and Tookaidoohonsen), although his mother tried repairing several times in a row. Finally, on hearing Asato say a repair properly despite his repeated refusal, his mother said angrily that he always enjoyed disobeying her like this:

(1)

Mother: nozomi ga tookaidoosen.　　"Nozomi (a train) is on the Tookaido Line."

Asato:　nozomi tookaihonsen.　　"Nozomi on the Tookai Main Line."

Asato:　nozomi ga tookaihonsen desu.　"Nozomi is on the Tookai Main Line."

　　　　　　　　　　　　　← lexical-semantic error (twice in a row, counted as one token)

Mother: tookaidooshinkansen.　　"The New Tookaido Line." ← lexical-semantic repair

Mother: soo soo (?).　　　　　　(almost unintelligible, overlapping Asato)

Asato:　tookaidooho-ten desu.　　← failing to repair, lexical-semantic error again

Mother: tookaidooshinkansen.　　← lexical-semantic repair

Asato:　chi:ga:u. (loudly)　　　"No, that's wrong."

Asato:　tookaidooshinkansen!　　← proper repair (despite disagreement)

Mother: atteru ja:n.　　　　　　"Hey, that's correct ! "

Mother: dooshite Kakka no wa itsumo nandemokandemo chigau no yo. Asatokun.

　　　　　　　　　　　　"Asato, why do you always go against me in everything? "

Asato:　(screaming)

　　　　　　　　　　　　(Asato, File 21028.cha: line 4472, transcription simplified)

Arika, too, persistently repeated an error despite her mother's repair. At 3;0.2 she made an error: *gomikyuukyuusha. Although this sounds like a phonological error, it was categorized as a lexical-semantic error comprising the incorrect combination of gomi-shuushuusha 'garbage truck' and kyuukyuusya 'ambulance'. In (2), her mother contrasts two toy cars by pronouncing their names clearly, but Arika continues the mispronunciation:

(2)

Arika:　gomikyuukyuusha.　　　← lexical-semantic error

Arika:　koko de:su. ippai de:su.　　"It's here. It's full."

Mother: un.　　　　　　　　"Hm."　　← move on

Arika:　ippai gomikyuukyuusha de:su. "Gomi-kuukyuusha is full."　← lexical-semantic error

Mother:	gomishuushuusha.	← lexical-semantic repair
Mother:	kotchi ga …(picking up one toy car) "This one is…"	
Arika:	gomikyuukyuusha.	← failing to repair (lexical-semantic error again)
Mother:	kore wa kyuukyuusha.	"This is an ambulance." ← lexical-semantic repair
Arika:	e? gomikyuukyuusha kore? "Eh? Is this gomishuushuusha?"	
		← failing to repair (lexical-semantic error again)

(after this, the repair-response exchange goes five times)

Arika:	gomishuushuusha.	← Uptake (repairing properly)
Mother:	gomi-shuushuusha.	(a pause between two morphemes)
Arika:	gomikyuukyuusha.	← lexical-semantic error (lexical-semantic error again)
Mother:	"kyuu-kyuu" janai.	"It's not 'kyu-kyu'."
Mother:	kyuu wa kotchi. (showing an ambulance) "This is 'kyuu'."	
Mother:	kyuukyuusha.	"Ambulance."
Mother:	shuushuusha.	"Pickup car (truck)."

(After this, Arika pronounces *shuushuusha* correctly twice. After the successful repair, her mother says the correct word again)

Mother:	gomishuushuusha.	← lexical-semantic repair (three times in a row)
Arika:	gomikyuukyuusha.	← lexical-semantic error (lexical-semantic error again)
Mother:	kyuukyuusha janai. gomi-shuushuusha. (a pause between two morphemes)	
	"It's not an ambulance."	← lexical-semantic repair
Arika: a:	ochikatta (oshikatta).	"Oh, it was close." ← move on
		(Arika, File 30002.cha: line 350, transcription simplified)

In this exchange, Arika is able to pronounce the word correctly a few times, but her mispronunciation ultimately resumes. This may be due partly to the difficulty of pronunciation. Yet, she did not pronounce the word as slowly as her mother did to prevent her from making this error again. Likewise, at 3;0.21 Arika mispronounced the word shinkansen as *shinsanken (this file is not included in this analysis). Her mother made a phonological repair about a dozen times in a row, while Arika emphasized the /s/ sound in her error in order to justify what she meant. In the end, she tried imitating her mother, but gave up. This resistance to adults' repairs has long been discussed. A well-known episode from McNeill (1966) goes as follows: "Nobody don't like me." This child's error is repeated more than eight times against an adult's repair. Seemingly, they are situations in which negative evidence cannot stimulate children's rule reanalysis.

9. Conclusions

This study's findings demonstrate mothers' tendency to rarely repair their children's errors, choosing instead to simply continue the conversation. Thus, children are left unaware of their errors. Even when mothers repaired errors, children rarely followed their instructions. Children also opted to continue the conversation. From cross-linguistic viewpoints, this tendency derives from communicative purposes rather than grammatical ones. For example, the Japanese mothers examined in this study prioritized helping their children to fully discuss topics, rather than speaking correctly. It is not clear whether, as the motherese study (Fernald and Morikawa (1993) suggested, that such communicative differences reflect cultural variations in adult-initiated repair patterns. It follows that mother-initiated repairs cannot be a reliable source of negative evidence, or a driving force in grammatical development. Notably, though, this conclusion is not sufficient to either confirm or invalidate nativism and the doctrine of universal grammar. Thus, questions remain regarding

children's observation of negative evidence, and the ways in which they use it to modify their current grammatical knowledge. It also remains to be seen why children's errors do not persist into adulthood. Moreover, they rarely end up with a distorted sense of grammar, or multiple misconceptions. Of course, mothers are not the only input suppliers for children. People outside the home may influence children's use of language, also enabling them to discover rules of grammar. The maternal repairs in the MiiPro data were quite limited in number, as the data represented only four children. Wider longitudinal and cross-sectional research data is necessary to explore Japanese adult-initiated repairs. Further study could also investigate children's reactions, learning how their grammar develops into the correct rule application common to native speakers.

Notes

1   Most child speech researchers use the terms *correction* and *repair* nearly synonymously. Often, they do not distinguish them from each other. Yet (inexplicably), they prefer one over the other. *Correct* usually means removing an error in the medium (e.g. speech, text, judgment), and revising it to the proper condition. As we say *error correction* rather than *error repair*, the meaning of *repair* usually means fixing or mending something broken and damaged (New Oxford American Dictionary; Oxford Dictionary of English 2005-2018). As I have used the term *repair* in my previous studies (e.g. Kubota 2006), I will use it throughout this paper unless a *correction* needs to be mentioned (e.g., from other references).

2.   Child age is notated as follows: year; month: day, as required for the transcription of the CHILDES database (MacWhinney 2000).

Acknowledgments

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