

Children's Interpretation of Disjunction in Questions in Japanese

Nobuaki Akagi¹, Takuya Goro², Rosalind Thornton¹,
and Stephen Crain¹

¹Macquarie University and ²Tsuda College

1. Introduction

The theory of Universal Grammar (UG) was advanced to explain various phenomena observed in human languages, and to explain children's universal mastery of human language (Chomsky, 1981). UG is comprised of two components – principles and parameters. The principles apply universally, delimiting the hypothesis space for language learners. Parameters are invoked to explain some of the variation that appears across languages. The task of language learners is to map their innate universal grammar onto the local language. Armed with a finite set of parameters, children use the primary linguistic data to select between the (binary) options, homing in on the particular features that distinguish the local language from other languages spoken elsewhere around the globe. Both principles and parameters circumscribe what counts as a possible human language, thereby ensuring that there is continuity between child and adult grammars (Pinker, 1984). One strong version of the continuity hypothesis maintains that child language can differ from the language of adults only in ways that adult languages can differ from each other (Crain, 1991; Crain & Pietroski, 2001, 2002; cf. Pinker, 1984).

The principles and parameters theory of UG views language development as a process by which learners adjust parameter values in order to match those that are operative in the local language. This process leaves open the possibility that, at some point in time, children may adopt parameter values that are not attested in the local language but ones that are manifested in other languages. If so, it is as if children speak a fragment of a 'foreign language' in the course of language acquisition (Crain & Pietroski, 2001, 2002). Examples supporting this account of children's non-adult linguistic behavior include medial *wh*-phrases in the long-distance *wh*-questions produced by English-speaking children (Thornton, 1990) as well as the lack of obligatory inversion in the *why*-questions produced by English-speaking children (Thornton, 2008). Furthermore, the continuity hypothesis has been invoked to explain the non-adult interpretations children assign to negative statements that contain disjunction. More specifically, children acquiring Japanese initially interpret negated disjunctions (e.g., *The pig didn't eat the pepper or the carrot*) in the same way as English-speaking children and adults do, but the interpretation assigned by Japanese-speaking children differs from that of adult Japanese speakers (Goro & Akiba, 2004; see Crain, Goro, & Thornton, 2006, for a review).

These examples of children's non-adult productions and non-adult interpretations challenge the experience-based account of language development (Goldberg, 1995, 2006; Langacker, 1988, 2000; MacWhinney, 2004; Tomasello, 2000, 2003). On this view, each distinct linguistic form serves to convey a unique function. Language acquisition is characterized as a process of extracting from the input a distinct form and associating it with a unique function. To make language acquisition possible in the absence of negative evidence (Bowerman, 1988; Marcus, 1993), children's linguistic behavior is

* We would like to thank Aijun Huang, Tetsuya Sano, Yi (Esther) Su, Peng Zhou, the audiences at GALANA 4 and at GLOW in Asia VIII, and two anonymous reviewers for their insightful comments and suggestions. We are also grateful to the students at Ibaraki University who kindly assisted us in conducting the experiments. Last but not least, we would like to show our deep appreciation to the children and teachers at Ibaraki University Kindergarten for their cooperation. This study was partially Grant-in-Aid for Young Scientists (Startup) #20820009 from Japan Society for the Promotion of Science.

taken to be conservative. The claim is that children’s linguistic competence matches the input (though it may be a ‘pared-down’ version, missing certain elements) (e.g., MacWhinney, 2004; Tomasello, 2000, 2003). These models do not anticipate that children will manifest linguistic properties that are not attested in the local language.

The present paper offers further evidence in support of the continuity hypothesis, and a further challenge to the experience-based account. We show that children learning Japanese do not immediately interpret yes/no questions (YNQs) with disjunction in the same ways as Japanese-speaking adults do. Instead, Japanese-speaking children interpret Japanese as if it is English. In the next section, we compare the possible interpretations of YNQs with disjunction in English and in Japanese.

2. Yes/no questions with disjunction

Most human languages have formal ways to mark questions (Dryer, 2008). Probably, the most common way is by prosodic cues (i.e., rising or falling intonation) (Bolinger, 1980). In addition to the use of prosodic information, YNQs can also be conveyed by lexical properties, such as adding a question particle to a declarative sentence. Alternatively, morphological or syntactic properties can be used to mark YNQs. What is common to YNQs across languages is that they require an explicit marker indicating that the illocutionary force of YNQs is distinct from that of declarative sentences. We illustrate this in (1), where Q represents an abstract label of such a licenser.¹

- (1) a. Ichiro laughed (Declarative)
 b. Q [Ichiro laughed] (Question)

In English, Q is realized by subject-auxiliary inversion, whereas in Japanese, Q is marked by a sentence final particle *ka*, as in (2).

- (2) Ichiro-wa warai-mashi-ta ka?
 Ichiro-Top laugh-Polite-Past Q?
 ‘Did Ichiro laugh?’

Interestingly, once Q is added to declarative sentences with disjunction, further cross-linguistic variation emerges. English YNQs with disjunction are ambiguous. One reading corresponds to a YNQ. On the other interpretation, the question asks which particular one, among the alternatives, is true. This second interpretation is known as an alternative question (AltQ). The AltQ reading sometimes hinges on pragmatic context, and it is characteristically associated with a prosodic break, and with stress being placed on the disjunctive phrase. The ambiguity is illustrated in (3).

- (3) Did Ichiro eat the pudding or the cake?

Interpretations:

- a. *Is it true that Ichiro ate the pudding or the cake?* (YNQ)
 b. *Which dessert did Ichiro eat, the pudding or the cake?* (AltQ)

The Japanese counterpart to the English example (3) is unambiguous, as shown in (4). The unique interpretation of the Japanese question in (4) is the YNQ reading; the AltQ reading is not permitted in questions of this kind in Japanese, regardless of changes in pragmatic context or prosody.

¹ Here, we simply assume that Q is some kind of licenser of questions, either a syntactic feature (e.g., Chomsky, 1995) or an operator (e.g., Baker, 1970).

- (4) Ichiro-wa purin ka keki-o tabe-mashi-ta ka?
 Ichiro-Top pudding or cake-Acc eat-Polite-Past Q

Interpretations:

- a. *Is it true that Ichiro ate the pudding or the cake?* (YNQ)
 b. **Which desserts did Ichiro eat, the pudding or the cake?* (AltQ)

To pose an AltQ in Japanese requires two separate YNQs, and these are often separated by another lexical form of disjunction, *soretomo* as in (5). In many cases, *soretomo* is optional.

- (5) Ichiro-wa purin-o tabe-mashi-ta ka soretomo (*pro*) keki-o tabe-mashi-ta ka?
 Ichiro-Top pudding-Acc eat-Polite-Past Q or (*pro*) cake-Acc eat-Polite-Past Q
 ‘Did Ichiro eat the pudding or did (*pro*) eat the cake?’

It is also worth noting that it is not acceptable to produce reduced AltQs in Japanese, as in (6), where the VP from the first YNQ has been elided. Native speakers tend to judge sentences like (6) to be marginal, and favor the expression of alternative questions using two full YNQs conjoined by *soretomo*.

- (6) ?/*Ichiro-wa purin-o ~~tabe-mashi-ta-ka~~ soretomo (*pro*) keki-o tabe-mashi-ta ka?
 Ichiro-Top pudding-Acc ~~eat-Polite-Past-Q~~ or (*pro*) cake-Acc eat-Polite-Past Q

We have seen that both Japanese and English form YNQs with disjunction, and that English permits a reading for such YNQs that is impossible in Japanese. Given these cross-linguistic facts, we can ask whether Japanese-speaking children interpret YNQs with disjunction in the same way as Japanese-speaking adults (i.e., as having only the YNQ interpretation). The two main competing theories of language development give different predictions here. According to experience-based accounts, children are expected to immediately converge on the adult interpretation of YNQs with disjunction (cf. MacWhinney, 2004; Tomasello, 2003). This expectation is derived from the supposition that children are conservative learners and adopt only linguistic forms and their associated meanings that are attested in the input. On such accounts, Japanese-speaking children should quickly learn that YNQs with disjunction are uniquely associated with the YNQ reading and that AltQs are realized by the appearance of two full YNQs, conjoined with *soretomo*. There is an alternative, however. It is also possible that Japanese-speaking children initially differ from adults in the assignment of interpretations to YNQs with disjunction. But if this difference is one that is attested in other languages, but not attested in the input, then this finding would be in line with the continuity hypothesis. To adjudicate between these possibilities, we conducted the experiments presented in the following section.

3. Experiments

The present experiment investigates how Japanese-speaking children comprehend YNQs with disjunction, as in (4). To investigate children’s interpretations, we collected and analysed children’s responses to such questions. There is a range of possible answers to questions, as shown in (7), some of which are appropriate only for the YNQ reading, and others which are acceptable only for the AltQ reading.

- (7) a. Hai/Iie,
 Yes/No
 ‘Yes/No’
 b. (*pro*) Tabe-mashi-ta/Tabe-ma-sendeshi-ta
 eat-Polite-Past/eat-Polite-Neg-Past
 ‘(*pro*) ate/didn’t eat’
 c. Purin!
 ‘The pudding!’

An answer like ‘Yes’ or ‘No’, as shown in (7a), is acceptable in a YNQ, but not in an AltQ, and (7b), likewise. In contrast, an answer with a single NP ‘the pudding’, as in (7c), is acceptable in an AltQ, but not in a YNQ. Thus, we measured the proportion of these ‘identifying’ types of children’s responses and used them as an index for identifying how children interpreted questions.

3.1. Participants

Forty monolingual Japanese-speaking children (15 boys; 25 girls) participated in the experiments. Children ranged in age from 4;7 to 6;5 (mean = 5;7). All of the children were recruited at Ibaraki University Kindergarten in Mito Japan. Twenty native Japanese-speaking adults were also recruited as control subjects. They were either undergraduates or students at the English Learning Centre at Macquarie University in Sydney Australia.

3.2. Types of question stimuli

The child subjects were partitioned into two groups, each with twenty children. One was the experimental group which ranged in age from 4;9 to 6;5 (mean = 5;7). The other was a control group which ranged in age from 4;7 to 6;5 (mean = 5;6). The experimental group received four target YNQs with disjunction, as in (8), while the control group received four AltQs (i.e., ‘YNQ+*soretomo*+YNQ’), as in (9).

(8) Butasan-wa ninjin ka piiman-o tabe-ta kana?
Mr. Pig-Top carrot or pepper-Acc eat-Past Q
‘Did Mr. Pig eat the carrot or the pepper?’

(9) Butasan-wa ninjin-o tabe-ta kana, soretomo piiman-o tabe-ta kana?
Mr. Pig-Top carrot-Acc eat-Past Q, or pepper-Acc eat-Past Q
‘Did Mr. Pig eat the carrot, or (did Mr. Pig) eat the pepper?’

As control items, both groups were also presented with four simple YNQs without disjunction and four wh-questions, as illustrated in (10) and (11). The purpose of these control questions was to determine how children responded to YNQs without disjunction and to questions asking information about an argument noun phrase. These responses served as a baseline for comparison with the target questions. Thus, each child subject answered a total of twelve questions. These were presented in a pseudo-random order. For the adult control group, there were four each of (a) YNQs with disjunction, (b) AltQs, and (c) YNQs without disjunction. These were pseudo-randomly ordered and presented in one session.

(10) Butasan-wa ninjin-o tabe-ta kana?
Mr. Pig-Top carrot-Acc eat-Past Q
‘Did Mr. Pig eat the carrot?’

(11) Butasan-wa nani-o tabe-ta kana?
Mr. Pig-Top what-Acc eat-Past Q
‘What did Mr. Pig eat?’

Note that, instead of *ka*, another question particle *kana* was used in the questions presented to participants because *ka* is more natural when used with a polite form of a question; thus, it was not pragmatically appropriate to use it with children in our experimental context. Use of the more colloquial particle *kana* reduces any pragmatic discord in the dialog between children and the experimenter. This was not expected to have any impact on the experimental outcomes.

3.3. Procedure

We used a modified version of the Truth Value Judgment task (Crain & Thornton, 1998) designed by Goro and Akiba (2004). In the experimental task, a child subject watched fifteen short vignettes of animals participating in an ‘eating game’, which was demonstrated by an experimenter with pictures and paper-made objects. In each vignette, an animal attempts to eat two types of vegetables that they do not like (Figure 1a, *Mr. Pig tries to eat a carrot and a pepper*). After the attempt by each animal (Figure 1b, *Mr. Pig emptied the plate serving the carrot but left the pepper on the plate*), children were asked to give a reward to the animal based on its performance. If an animal ate both types of vegetables, the child subject was instructed to give it a gold medal. If the animal could only bring itself to eat one of the vegetables, the child was instructed to give it a silver medal. If an animal refused to eat any of the vegetables, the child was instructed to give it a black cross (Figure 1c, *Mr. Pig received a silver medal*). The purpose of the reward-system was to engage children in the task, and to make it felicitous to ask questions about what had happened in the vignette.

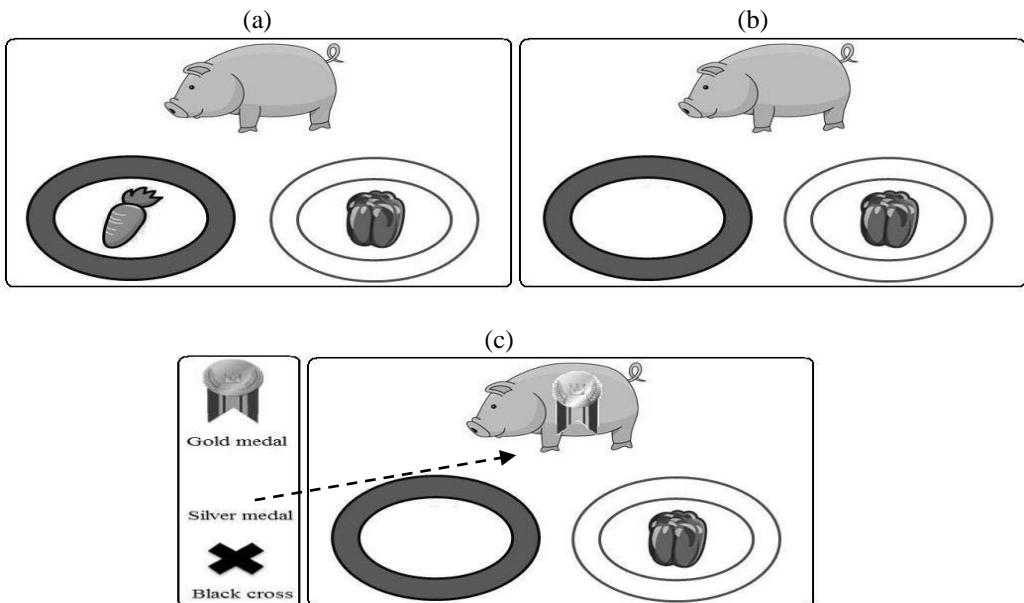


Figure 1. Examples of scenes in the vignettes given to the subjects.

The first three vignettes were warm-up trials to introduce the rules of the reward-system that would be employed in the main sessions of the experiment. Children were not asked any questions during the warm-up trials. In the remaining twelve vignettes, once an animal had received a reward from the child, a question was posed to the child. The question was presented by a puppet played by a second experimenter. The puppet watched the vignettes alongside the children, and then asked them a question, using either a target question or a control question in a conversationally natural manner. Four YNQs with disjunction and four AltQs were each asked in a silver medal condition. Two of the four YNQs without disjunction were presented in a gold medal condition, and two YNQs without disjunction were presented in a black cross condition. Two of the four wh-questions were presented in a gold medal condition, and two wh-questions were presented in a silver medal condition. Children were tested individually in a quiet room separated from their classroom. Children’s verbal and gestural responses, such as pointing, nodding, or shaking of the head were recorded by the second experimenter. The adult control subjects were tested using the same procedures, except that they were not asked to reward the various animals, and they were asked questions posed by the experimenter without using a puppet.

3.4. Coding

Children’s verbal or gestural responses were categorized into four response types. The first response type was children’s responses that could only be derived from a YNQ (YN). Responses in which children said ‘Yes’ or ‘No’ or produced only a verb, as in (7b), were considered to be responses of this kind. In addition, gestural responses like nodding and shaking head were considered to fall into this category. The second type was a simple noun phrase answer (NP). These answers with a single noun phrase like *Ninjin!* ‘Carrot!’ were acceptable only for AltQs. Instead of verbalizing the name of a vegetable, if children just pointed to the correct vegetable as their response, these gestural responses were considered as NP responses as well. The third response type was responses that were acceptable answers for either a YNQ or for an AltQ. We call this response type ‘Unidentifiable’ because these responses could not be used to tease apart children’s interpretations. Sentential answers which do not require a subject like (*pro*) *ninjin tabe-ta!* ‘(*pro*) Ate a carrot!’ were counted as falling in this category. Other answers were categorized as Unidentifiable, including ones in which the child exhaustively listed those vegetables the animal ate and those he did not; for example, an answer like *ninjin tabe-ta kedo piman tabe-nakat-ta!* ‘Ate a carrot but didn’t eat a pepper’. Finally, the fourth type gathered together all remaining other kinds of answers (Other). This included children’s incorrect answers. For example, suppose that Mr. Pig ate a carrot, but not a pepper, and the child was asked ‘Did Mr. Pig eat the carrot or the pepper?’ If a child answered ‘No’, then this response was coded as ‘Other’. Such answers suggest that the child had misunderstood the question, or did not understand the meaning of disjunction. The following table provides example answers of each response type.

Table 1
Examples of possible answers for each response type

YN	NP	Unidentifiable	Other
<u>Verbal</u> <ul style="list-style-type: none"> • “Yes/No.” • “Yes, he ate.” • “No, he didn’t eat.” • “(He) ate.” • “(He) didn’t eat.” <u>Gestural</u> <ul style="list-style-type: none"> • Nodding • Shaking head 	<u>Verbal</u> <ul style="list-style-type: none"> • “Carrot!” <u>Gestural</u> <ul style="list-style-type: none"> • Pointing an correct object 	<u>Verbal</u> <ul style="list-style-type: none"> • “(He) ate the carrot.” • “Only ate the carrot.” • “(He) ate the carrot but not the pepper.” 	Any response which is not categorized in the other three response types.

3.5. Results

Let us first compare children’s and adults’ responses to YNQs containing disjunction. The critical response type is NP. If children, like adults, disallow an AltQ interpretation, then no significant difference is anticipated in the proportion of NP responses. As illustrated in Figure 2, the results show that 45% (36/80) of children’s responses were NP responses, and that this was considerably higher than the proportion of NP responses by adults (8%, 6/80). A non-parametric test (Mann-Whitney Test) revealed a statistically significance difference between the two groups ($z = -3.4$, $p = .001$, $r = -.54$). The data suggest, therefore, that an AltQ interpretation of YNQs with disjunction is accessible to some children.

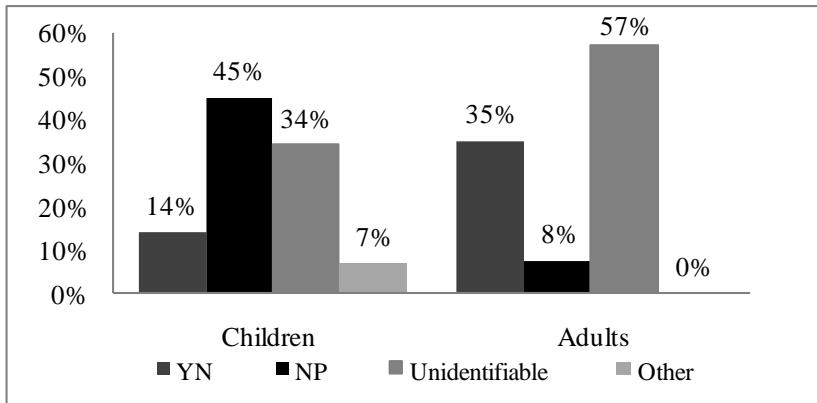


Figure 2. Proportions of different response types for YNQs with disjunction for children and adults.

One might question whether the 8% NP responses given by adult subjects disproves the claim made earlier that NP responses to YNQs with disjunction are unacceptable for adults. In our view, it is more likely that these responses can be attributed to noise. Recall that for adult subjects, interpretations of target questions and AltQs were tested in the same experimental session. A closer look at the two adult subjects who produced NP response reveals that their first response to YNQs with disjunction was a YN response, but then they shifted to an NP response for the remaining three trials (i.e., once they had encountered the AltQ control trials). Thus, for the two adult subjects who produced NP responses, there were six unanticipated answers. Given that both YNQ interpretations and AltQ interpretations were tested within the same session, it seems reasonable to suppose that these NP responses were due to carry-over effects from the AltQ control trials.

As an additional check, children's responses were also analyzed to see whether or not YN responses and NP responses appeared together. Table 2 shows the number of child subjects who produced the different combinations of YN and NP responses. This does not mean that children didn't produce Unidentifiable responses or Other responses. In fact, such responses did co-occur with NP responses for some children.

Table 2

Children's response patterns of YN and NP in YNQs with disjunction

Response Type	✓ YN	× YN	✓ YN	× YN
Presence: ✓	✓ YN	× YN	✓ YN	× YN
Absence: ×	× NP	✓ NP	✓ NP	× NP
Number of Subjects	2	11	2	5

The data from this analysis show that only two out of twenty children interspersed YN and NP responses (i.e., the third column), and eleven children produced NP, but never YN responses (i.e., the second column). That is, the majority of NP answers came from children who never produced YN answers. This leads us to conclude that NP responses were not given randomly by any children.

The control group of children who were tested on AltQs answered predominantly with answers of NP (85%, 68/80) but they never produced YN responses (see Figure 3). This suggests that children had no problem with 'YNQ+soretomo+YNQ' as an AltQ, despite the length of the question.

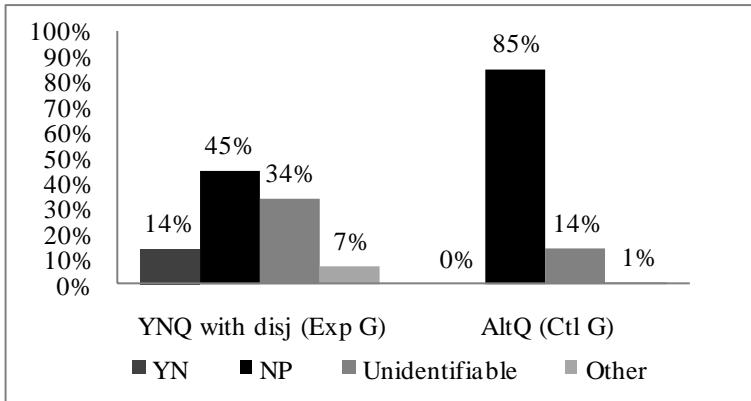


Figure 3. Proportion of children's response types in YNQs with disjunction and AltQs.

Children's responses to YNQs without disjunction, and to wh-questions, show a skewed distribution. In YNQs without disjunction, YN responses almost reached ceiling in both the experimental and control groups (96%, 77/80 and 94%, 75/80 respectively). Similarly, almost all of the responses to wh-questions for both groups were NP responses (experimental group: 92%, 74/80; control group: 97%, 78/80). It is clear that the control questions exhibited a strong tendency to elicit one particular response type from children. Therefore, it is reasonable to interpret children's different proportions of YN and NP responses to YNQs with disjunction as due to the presence of disjunction. The fact that disjunction appeared in the question made both the YNQ interpretation and the AltQ interpretation available to children.

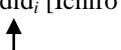
4. Discussion

The large proportion of NP responses to YNQs with disjunction by Japanese-speaking children at around age five was associated with the AltQ interpretation, which is a valid interpretation in languages such as English, but an interpretation that is not possible for adult speakers of Japanese. We take the experimental findings to provide support for the continuity hypothesis. The finding that child language differs from that of adults in ways that adult languages differ from each other not only supports the continuity hypothesis, but it also casts doubt on experience-based models of language development which are based on the premise that children rely heavily on induction in language learning. It is apparent that inductive learning is not operative here because Japanese children are 'ignoring' the input that uniquely associates YNQs with a YNQ interpretation. As we have seen, children also permit the AltQ interpretation, although this interpretation is not attested in the primary linguistic data that children experience.

The interpretive difference between Japanese children and adults (and also among other adult languages) can be explained by invoking a parameter, as in the Principles and Parameters framework (Chomsky, 1981). Although it is not the goal of this paper to characterize the parameter, two potential sources for the observed cross-linguistic variation suggest themselves. To assist in illustrating these possible sources of variation, let us suppose that the scope relation between Q and disjunction determines which of the possible interpretations of YNQs with disjunction is assigned (cf. Larson, 1985). In English, a YNQ with disjunction like (3), repeated here as (12a), is assigned an AltQ interpretation just in case the phrase containing disjunction moves at LF to take scope over Q, as illustrated in (12b).² In contrast, when the same YNQ with disjunction in (12a) is interpreted as a YNQ, the phrase with disjunction is in the scope of Q, as in (12c).

² We are not precisely following Larson's (1985) proposal here. He assumes that there is a covert wh operator adjoined to the disjunctive phrase and that what undergoes LF-movement is the wh operator but not the disjunctive phrase. Since we want to avoid committing to the idea of a covert wh operator, for the sake of simplifying the explanation of scope-related phenomena here, we take it to be the disjunctive phrase that undergoes the LF-movement. We refer the reader to Beck and Kim (2006) for extensive discussion on the LF-movement involved in AltQs.

- (12) a. Did Ichiro eat the pudding or the cake?
 b. [[the pudding or the cake]_i [did_i [Ichiro t_i eat t_i]]]

 c. [did_i [Ichiro t_i eat [the pudding or the cake]]]


Adopting this scope analysis of the different interpretations,³ it is apparent that the Japanese counterpart to (12a) never permits the phrase with disjunction to take scope over Q. The result is the interpretive restriction discussed earlier. The cross-linguistic (including child versus adult language) variation can be stated as a parameter, with two values, [+Move] languages like English and [-Move] languages like Japanese.

A second way to enforce the scope restriction in Japanese is to attribute language variation to the position of the Q licensor in the phrase structure. In Japanese, the Q licensor is the question particle *ka*. If we suppose that *ka* is base-generated in a position even higher than the landing site of the phrase with disjunction, this also renders an interpretive restriction operative in Japanese, because the question particle *ka* will always take scope over the phrase with disjunction. A growing number of studies adopting a Split-CP hypothesis (Rizzi, 1997, 2001) have indicated that there is syntactic variation involving the Q licensor. Adopting this hypothesis, it is commonly assumed that, in English, the Q licensor is positioned in the head position of a focus phrase (FocP). When (12a) is assigned an AltQ interpretation, the phrase with disjunction moves at LF to the specifier position of the FocP where it takes scope over Q.⁴ On the other hand, the Q licensor has been analyzed as a question particle in some languages (e.g., Marshallese: Willson, 2005). In this case, Q is base-generated in an interrogative phrase (IntP) which is higher in the structure than the FocP.⁵ If we adopt a similar analysis for Japanese *ka*, then the scope restriction for Japanese is enforced because *ka* is situated in the IntP, where it takes scope over the phrase with disjunction, regardless of the fact that this phrase has undergone LF-movement. This is illustrated in (13), which shows how language variation can be derived by examining the syntactic position of Q. The variation turns on whether Q is higher (Japanese) or lower (English) than the landing site of the phrase with disjunction. At present, it is

³ An anonymous reviewer pointed out to us that English YNQs with disjunction may involve some kind of ellipsis, such as ‘gapping’ (cf. Han & Romero, 2004; Schwarz, 1999). This analysis is illustrated in (i), where the result is an AltQ. However, the Japanese question counterpart to (i) cannot undergo such an ellipsis, due to its SOV word order. In fact, this difference between English and Japanese provides a possible explanation of why Japanese YNQs with disjunction cannot access an AltQ reading. This is an alternative account of interpretive variation in YNQs with disjunction.

- (i) Did Ichiro eat the pudding or ~~did Ichiro eat~~ the cake?

The reviewer also points out, however, that ellipsis cannot be straightforwardly applied in examples like (ii), but an AltQ reading is available nonetheless.

- (ii) a. Did Ichiro or Hanako eat the pudding?

Ellipsis: *Did Ichiro ~~eat the pudding~~ or did Hanako eat the pudding? (Reviewer’s p.c.)

- b. Did she turn the test or the homework in?

Ellipsis: *Did she turn the test ~~in~~ or did she ~~turn~~ the homework in? (Han & Romero, 2004)

Given our finding that Japanese-speaking children assign an AltQ reading, despite SOV word order, we tentatively prefer to maintain the scope analysis rather than the ellipsis analysis in this circumstance. Further experiments are needed to adjudicate between these alternative sources of children’s non-adult behavior.

⁴ An AltQ in Hungarian is a good example to show the landing site of the disjunction phrase movement. Instead of undergoing LF-movement, a Hungarian AltQ, as exemplified in (i), requires an overt movement of a phrase with disjunction to the position left to a verb, which is considered to be the specifier position of the focus phrase.

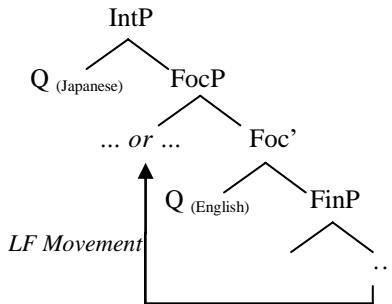
- (i) Pétert vagy Mari-t hívtad meg mindig?
 Péter-Acc or Mari-Acc invited-2sg Perfectivizer always

‘Did you always invite Péter or Mari?’

(Beck & Kim, 2006)

unclear which of these possibilities, among others, is the best candidate as the source of the restriction on the interpretation of Japanese YNQs with disjunction. We must leave this for future research.

(13)



We argued that Japanese-speaking children start with an incorrect parameter value that allows two interpretations of YNQs with disjunction. Therefore, we need to identify the positive evidence that initiates language change for children. One potential form of positive evidence comes from adults' responses to questions. As observed in our adult controls, adults rarely produce NP responses in response to YNQs with disjunction. If children are led to expect such responses to occur, then the absence of such responses in the adult input can serve as indirect negative evidence that such responses are not represented in the local language (Chomsky, 1981). Another possibility is that Japanese-speaking children avail themselves of the uniqueness principle (Pinker, 1984; Wexler & Culicover, 1981). The uniqueness principle instructs language learners to assume that forms and meanings are one-to-one mappings, in the absence of evidence for more than one mapping. On this scenario, children's grammars allow both YNQs with disjunction and YNQs joined by *soretomo* to generate an AltQ reading at the initial stage. Once children adopt YNQs joined by *soretomo* as the source of the AltQ interpretation, the two forms may fluctuate until the uniqueness principle 'kicks in', compelling children to jettison the AltQ interpretation of YNQs with disjunction.

5. Concluding remarks

To summarize, we have demonstrated that many Japanese-speaking children interpret YNQs with disjunction as AltQs, despite the absence of evidence for this interpretation in the primary linguistic data. The findings reveal that children's non-adult interpretations represent an interpretation that is attested in other languages, such as English. Our experimental findings thus lend support to the continuity hypothesis, which proposes that child and adult language differ only in the way in which adult languages can differ from each other. This implies that children are not learning the possible interpretations of YNQs with disjunction by identifying question constructions and their meanings in the input from adults. A task for future research is to investigate how children interpret YNQs with disjunction across a wider range of languages.

References

- Baker, Carl L. (1970). Notes on the description of English questions: the role of an abstract Q morpheme. *Foundations of Language*, 6, 197-219.
- Beck, Sigrid, & Kim, Shin-Sook. (2006). Intervention effects in alternative questions. *Journal of Comparative Germanic Linguistics*, 9, 165-208.
- Bolinger, Dwight. (1980). Intonation and nature. In Mary LeCron Foster, & Stanley H. Brandes (Eds.), *Symbol as Sense* (pp. 9-23). New York: Academic Press.
- Bowerman, Melissa F. (1988). The "No negative evidence" problem: How do children avoid constructing overly general grammar? In John A. Hawkins (Eds.), *Explaining Language Universals* (pp. 73-101). Oxford: Blackwell.

⁵ Before the projection IntP was introduced into the left periphery by Rizzi (2001), question particles were sometimes analyzed as being base-generated in the Force phrase (ForceP) which is above IntP in the structure.

- Chomsky, Norm. (1981). *Lectures on Government and Binding*. Dordrecht: Foris.
- Chomsky, Norm. (1995). *The Minimalist Program*. Cambridge, MA: MIT Press.
- Crain, Stephen. (1991). Language acquisition in the absence of experience. *Behavioral and Brain Sciences*, 14(4), 597-650.
- Crain, Stephen, Goro, Takuya, & Thornton, Rosalind. (2006). Language acquisition is language change. *Journal of Psycholinguistic Research*, 35(1), 31-49.
- Crain, Stephen, & Thornton, Rosalind. (1998). *Investigations in Universal Grammar: A Guide to Experiments on the Acquisition of Syntax and Semantics*. Cambridge, MA: MIT Press.
- Crain, Stephen, & Pietroski, Paul. (2001). Nature, nurture and Universal Grammar. *Linguistics and Philosophy*, 24, 139-186.
- Crain, Stephen, & Pietroski, Paul. (2002). Why language acquisition is a snap. *The Linguistic Review*, 19, 163-183.
- Dryer, Matthew S. (2008). Polar questions. In Martin Haspelmath, Matthew S. Dryer, David Gil, & Bernard Comrie (Eds.), *The World Atlas of Linguistic Structures Online* (Chapter 116). Munich: Max Planck Digital Library: <http://wals.info/feature/116>
- Goldberg, Adele E. (1995). *Constructions: A Construction Grammar Approach to Argument Structure*. Chicago, IL: Chicago University Press.
- Goldberg, Adele E. (2006). *Construction at Work: The Nature of Generalization in Language*. Oxford: Oxford University Press.
- Goro, Takuya, & Akiba, Sachie. (2004). The acquisition of disjunction and positive polarity in Japanese. In Vineeta Chand, Ann Kelleher, Angelo J. Rodriguez, & Benjamin Schmeiser (Eds.), *WCCFL 23: Proceedings of the 23rd West Coast Conference on Formal Linguistics* (pp. 251-264). Somerville, MA: Cascadia Press.
- Han, Chung-Hye, & Romero, Maribel. (2004). The syntax of whether/Q...or questions: Ellipsis combined with movement. *Natural Language and Linguistic Theory*, 22, 527-564.
- Langacker, Ronald W. (1988). A usage-based model. In Brygida Rudzka-Ostyn (Ed.), *Topics in Cognitive Linguistics* (pp. 127-161). Amsterdam: John Benjamins.
- Langacker, Ronald W. (2000). A dynamic usage-based model. In Michael Barlow, & Suzanne Kemmer (Eds.), *Usage-based Models of Language* (pp. 1-63). Stanford, CA: CSLI.
- Larson, Richard K. (1985). On the syntax of disjunction scope. *Natural Language and Linguistic Theory*, 3, 217-264.
- MacWhinney, Brian. (2004). A multiple process solution to the logical problem of language acquisition. *Journal of Child Language*, 31, 883-914.
- Marcus, Gary. (1993). Negative evidence in language acquisition. *Cognition*, 46, 53-85.
- Pinker, Stephen. (1984). *Language Learnability and Language Development*. Cambridge, MA: Harvard University Press.
- Rizzi, Luigi. (1997). The fine structure of the left periphery. In Liliane Haegeman (Ed.), *Elements of Grammar* (pp. 239-395). Boston: Kluwer Academic Publications.
- Rizzi, Luigi. (2001). On the position “int(errogative)” in the left periphery of the clause. In Guglielmo Cinque, & Giampaolo Sivi (Eds.), *Current Studies in Italian Syntax: Essays Offered to Lorenzo Renzi* (pp. 287-296). Amsterdam: Elsevier.
- Schwarz, Bernhard. (1999). On the syntax of either ... or. *Natural Language and Linguistic Theory*, 17(2), 339-370.
- Thornton, Rosalind. (1990). *Adventures in Long-distance Moving: The Acquisition of Complex Wh-Questions*. Doctoral dissertation, University of Connecticut, Storrs.
- Thornton, Rosalind. (2008). Why continuity. *Natural Language and Linguistic Theory*, 26, 107-146.
- Tomasello, Michael. (2000). Do young children have adult syntactic competence? *Cognition*, 74, 209-253.
- Tomasello, Michael. (2003). *Constructing a Language: A Usage-Based Theory of Language Acquisition*. Cambridge, MA: Harvard University Press.
- Wexler, Kenneth, & Culicover, Peter. (1980). *Formal Principles of Language Acquisition*. Cambridge, MA: MIT Press.
- Willson, Heather. (2005). Marshallese yes/no questions and remnant movement. In Jeffrey Heinz, & Dimitris Ntelitheos (Eds.), *UCLA Working Papers in Linguistics* (No. 12, pp. 421-435). Los Angeles, CA: Department of Linguistics, UCLA.

Selected Proceedings of the 4th Conference on Generative Approaches to Language Acquisition North America (GALANA 2010)

edited by Mihaela Pirvulescu,
María Cristina Cuervo, Ana T. Pérez-Leroux,
Jeffrey Steele, and Nelleke Strik

Cascadilla Proceedings Project Somerville, MA 2011

Copyright information

Selected Proceedings of the 4th Conference on Generative Approaches
to Language Acquisition North America (GALANA 2010)
© 2011 Cascadilla Proceedings Project, Somerville, MA. All rights reserved

ISBN 978-1-57473-447-8 library binding

A copyright notice for each paper is located at the bottom of the first page of the paper.
Reprints for course packs can be authorized by Cascadilla Proceedings Project.

Ordering information

Orders for the library binding edition are handled by Cascadilla Press.
To place an order, go to www.lingref.com or contact:

Cascadilla Press, P.O. Box 440355, Somerville, MA 02144, USA
phone: 1-617-776-2370, fax: 1-617-776-2271, sales@cascadilla.com

Web access and citation information

This entire proceedings can also be viewed on the web at www.lingref.com. Each paper has a unique document #
which can be added to citations to facilitate access. The document # should not replace the full citation.

This paper can be cited as:

Akagi, Nobuaki, Takuya Goro, Rosalind Thornton, and Stephen Crain. 2011. Children's Interpretation of
Disjunction in Questions in Japanese. In *Selected Proceedings of the 4th Conference on Generative Approaches to
Language Acquisition North America (GALANA 2010)*, ed. Mihaela Pirvulescu et al., 1-11. Somerville, MA:
Cascadilla Proceedings Project. www.lingref.com, document #2581.