

Addressing the Syntax/ Semantics/ Pragmatics interface: The Acquisition of the Japanese Additive Particle *mo*

Kazumi Matsuoka
Keio University

1. Interpretation of Focus Items

The semantic interpretation of adverbs such as *only*, *also*, and *even* has been a central issue of alternative semantics for focus (Rooth 1985, 1996). Some focus adverbs, including *only* in English, set a limit to the range of alternative sets by their syntactic position and / or prosodic patterns. In the following example, the syntactic position of *only* affects the range of alternative sets (as indicated in the parentheses).

- (1) a. Only Carla is holding a balloon.
(No other person is holding a balloon.)
b. Carla is holding only a balloon.
(Carla is holding nothing other than a balloon.)

The syntactic position is not always relevant to the interpretation of focus items. In the following example, the prosodic information influences the interpretation of the English focus adverb *also* ([]_F indicates ‘focused’ prosody).

- (2) a. John also introduced [Bill]_F to Sue.
(There is someone other than Bill, whom John introduced to Sue.)
b. John also introduced Bill to [Sue]_F.
(There is someone other than Sue, to whom John introduced Bill.)

(Rooth 1996)

Unlike its English equivalent *also*, the range of the alternative sets in the interpretation of the Japanese additive particle *mo* is syntactically determined. (Note that the additive particle replaces Nominative / Accusative Case particles.)

(3) Subject+*mo*

Yuki-**mo** jitensha-o motte-ir-u

Yuki-ADD bicycle-ACC have-STATE-PRES¹

‘Yuki has a bicycle, too (in addition to other people)’.

(4) Object+*mo*

Yuki-ga jitensha-**mo** motte i-ru

Yuki-NOM bicycle-ADD have-STATE-PRES

‘Yuki has a bicycle, too (in addition to other belongings)’.

The acquisition of such items should be a tremendously hard task for young children, since it requires combining information from multiple sub-modules: phonology (processing prosodic information), syntax, semantics, and pragmatics². To make the situation more challenging for children, the sub-module(s) relevant to the interpretation of focus items might vary among different lexical items. Nevertheless, there has not been much previous literature concerning children’s comprehension of sentences that include *mo*. Therefore, experimental research was conducted to find out how children cope with the challenge. We investigated how children associate the syntactic position of *mo* with the range of the possible alternative sets.

2. Subjects and Method

Children from a daycare center in Osaka, Japan (N: 19, age 5;6-6;7, mean 6;4) were tested with a Truth-Value Judgment Task (Crain and Mckee 1985). After the storyteller (experimenter 1) told a story, using toy props, the cow puppet (experimenter 2) uttered the target sentence that was meant to describe ‘one thing that happened in the story’. The subject was asked to judge if the cow was right or wrong. Based on their judgment, children fed a toy ice cream cone (as a reward for the right answer), or a toy vegetable (when the cow gave the wrong answer.)

The following patterns were included in the experimental stories (refer to the Appendix for a list of target sentences and the situations described in the stories);

¹ NOM: Nominative, ACC: Accusative, ADD: additive, STATE: ‘in the state of’, PRES: present, POLT: polite form

² As Rooth (1996) discusses, the range of the alternative set is affected by pragmatic factors; for example, it is not necessary to verify whether all human beings on the earth owns a bicycle to give the truth value to the statement (3). We will put aside the issue of how exactly the range of alternative set is pragmatically determined.

(5) Subject + *mo* sample story

A rabbit, a troll, and a cowboy were trying to decide who among them was the strongest one. The rabbit pulled a car. The troll pulled an airplane. The cowboy pulled a boar that was running fast in the opposite direction. Besides that, he pulled a whale.

Rabbit	Troll	Cowboy
Car	Airplane	Boar Whale

Target sentence: Kauboi-**mo** kujira-o hippari-mashi-ta
cowboy-ADD whale-ACC pull-POLT-PAST
'The cowboy pulled the whale, too'

Adult Japanese response: NO (since the cowboy is the only one who pulled the whale.)

(6) Object+*mo* sample story

Piglet, Timon, and Winnie-the-Pooh were having a slumber party. They found three comforters and food in the closet. The piglet chose the smallest comforter and a roll to eat for breakfast. Timon chose the middle-size comforter and a piece of orange. Winnie-the-Pooh went to see what was in the closet, but the only food left was a cookie. Pooh said, 'A cookie! It is good for afternoon snack; but I don't want it for breakfast.' He chose the largest comforter, but did not take any food.

Piglet	Timon	Pooh
Comforter Roll	Comforter Orange	Comforter

Target sentence: Pu-san-ga futon-**mo** motteki-mashi-ta
Winnie-the-Pooh-NOM comforter-ADD bring-POLT-PAST
'Winnie-the-Pooh brought a comforter, too.'

Adult Japanese response: NO (since it was only the comforter that Pooh brought.)

Three tokens for each story pattern and three warm-up/fillers were randomly ordered and presented in the experimental sessions.

3. Results

Three children did not finish the session. The performance of the rest of the subjects is summarized in the Table 1. The number shown in the table is the total of ‘NO’ (adultlike) responses.

	Mean age	Subject + <i>mo</i>	Object + <i>mo</i>
Group 1(N:4)	6;2	11/12 (92%)	11/12(92%)
Group 2 (N:7)	6;2	0/21 (0%)	0/21 (0%)
Group 3 (N:4)	6;2	8/12 (67%)	2/12(17%)
RK	5;8	0/3 (0%)	2/3 (67%)

TABLE 1: Number of ‘NO’ (Adultlike) Responses

As shown in Table 1, four children in Group 1 (mean age 6;2) gave an adultlike response 92% of the time. However, the performance of the rest of the subjects was rather surprising.

Nearly half of the subjects, shown as the Group 2 (N: 7, mean age 6;2), failed to demonstrate an adultlike comprehension of the sentences containing *mo*. My previous analysis of corpus data of three Japanese children revealed that productive usage of the additive *mo* began roughly before their second birthday. Hence, it is unlikely that those six-year-olds were not able to comprehend the additive meaning of *mo*. It is possible that their grammar provided a non-adultlike focus interpretation of *mo*, which is more similar to the one associated with *also* or *too* in English: an alternative set was chosen regardless of the syntactic position of the focus item.

The third group of children (N:4, mean age: 6;2) constantly gave the subject-only interpretation of *mo*: they gave an adultlike response to the subject+*mo* sentences, but not to the object+*mo* sentences. Children in this group seem to have associated *mo* with the subject in their interpretation of the sentences, no matter where

the particle appeared in the sentence³. One subject (RK age 5;8) presented a reversed pattern: she was adultlike when she interpreted the object+*mo* sentences, but could not assign proper interpretation to the subject+*mo* sentences. RK's response pattern indicates that the focus particle *mo* was associated with the object in her interpretation of the target sentences.

4. Cross-linguistic Analysis: Parameter of Interface Selection

Interestingly, non-adultlike response patterns, similar to Group 3 and RK's, were reported in a study of English-speaking children. Crain et al. (1993) investigated young children's interpretation of sentences which contain *only*. See the following examples:

- (7) Only the bird is holding a flag.
- (8) The bird is holding only a flag.

For (7) to be true, there should be no other character (other than the bird) who is holding a flag. On the other hand, for children to accept (8) as true, the bird should be holding nothing other than a flag.

They reported that young children gave either the subject-only (Average age: 4;8) or object-only (Average age: 5;0) interpretation of *only*, regardless of its syntactic position. The subject-only group of children always associated *only* with the subject for both of the sentences (7) and (8); the object-only group interpreted *only* as if it were associated with the object in both sentences. The response patterns of Group 3 and RK in the current study match the patterns reported in children's non-adultlike interpretation of *only*. This strongly implies that both subject-only and object-only interpretations of focus are universally allowed options in language development.

Children's various kinds of non-adultlike responses in the interpretation of focus items suggest that there are parametric options in terms of which interface should be accessed in the interpretation of focus items. Based on the data discussed so far, I

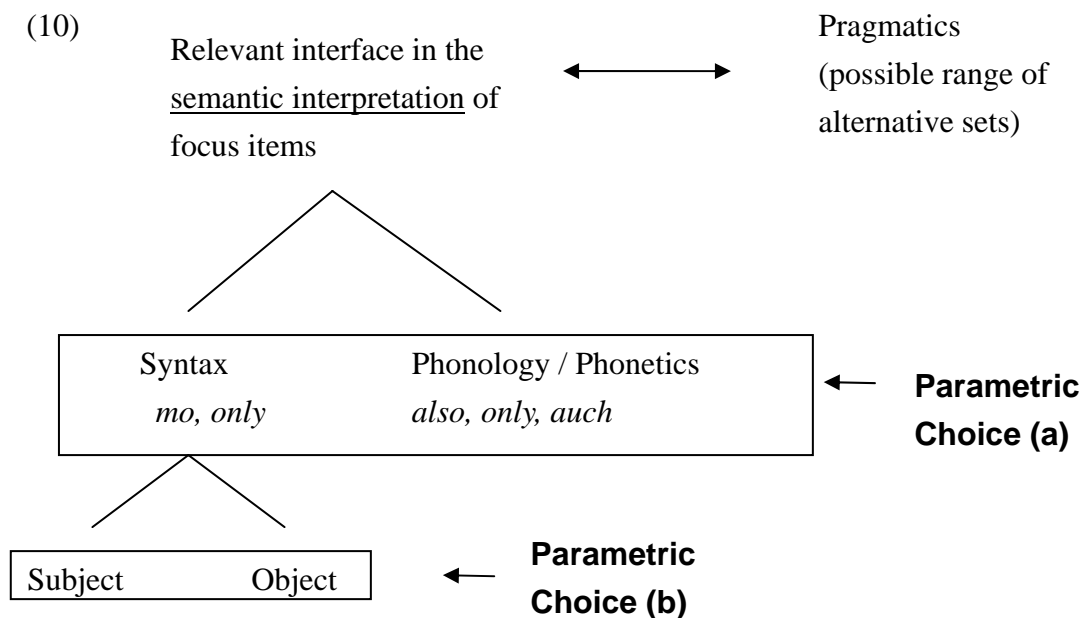
³ Yasuo Ishii and Noriko Kawasaki (p.c.) pointed out that the event-modification reading of *mo* could have played a role in some cases (Group 2 and 3) of the children's non-adultlike responses. The particle *mo* can be understood as modifying the entire event described by the sentence, e.g. *ame-mo fut-te-ki-ta*. '(in addition to all sorts of troubles), it began to rain, too.' Hence, they pointed out, the target sentence might have been understood to be 'the rabbit did something, the troll did something, and then (*mo*), the cowboy did something.' However, it is important to note that the event reading of *mo* requires a specific type of discourse to be previously established.

propose the ‘Parameter of Interface Selection’, as shown below:

(9) Parameter of Interface Selection

- (a) In the interpretation of focus items, the primary⁴ interface to be accessed is either phonology/phonetics (prosody) or syntax.
- (b) When the output of the syntactic module is chosen in the step (a), UG optionally provides the choice of associating the focus items with either the subject or the object⁵.

The following diagram shows parametric options for the interpretation of focus items discussed so far:



Children’s (various kinds of) non-adultlike responses in the interpretation of *mo* (and *only*) can be interpreted as a result of an improper (but grammatically allowed) choice

⁴ The “primary interface” refers to the interface to be accessed first. For focus items such as *only* in English, both syntactic and prosodic information can be used to set the relevant alternative set (see the footnote 6). Hence, the interpreting procedure of focus might not be controlled by parametric choices. The solution of the issue crucially depends on the exact definition of a “parameter setting”.

⁵ The parametric choice (b) was proposed to accommodate the existence of the different response patterns of young children. However, it is not clear at this point if there is any adult grammar that supports such a parametric choice. In addition, we need to consider this parametric choice to be optional, since its value should be neutral to properly interpret sentences that include *mo* or *only*.

of parametric options in terms of which interface information should be used in the interpretation of focus items.

It is not surprising that children need extra time to set the value of the parameters for focus items. As discussed earlier in Section 1, the alternative sets for *also*, *too* in English are determined by prosodic focus (Rooth 1996). In the following examples, the interpretation of the adverb *also* varies, even though it appears in the same syntactic position in both sentences.

(11) a. John also introduced [Bill]_F to Sue.

(There is someone other than Bill, whom John introduced to Sue.)

b. John also introduced Bill to [Sue]_F.

(There is someone other than Sue, to whom John introduced Bill.)

(Rooth 1996)

The choice of interface varies among different lexical items in the same language. For example, while prosodic information is required to calculate the semantic interpretation of *also*, *too*, and *even*, interpretation of sentences including *only* can be sensitive to syntactic information⁶. Hence, the proposed parameter is not set for a language; rather, it should be considered as a lexicalized parameter (Wexler and Manzini 1987). Children need to figure out, at earlier stages of language acquisition, which module is relevant to different lexical items. Even though the proposed parameter narrows down the possibilities they need to consider, the lexical variety significantly slows down the process of assigning the correct value to different focus expressions.

⁶ Interpreting *only* can be related to more than one submodule. In the following example, the interpretation of *only* depends on the prosodic pattern. Note that *only* appears in the same syntactic position in both sentences in below;

(a) John only introduced [Bill]_F to Sue.

(There is no one other than Bill, whom John introduced to Sue.)

(b) John only introduced Bill to [Sue]_F.

(There is no one other than Sue, to whom John introduced Bill.)

(Rooth 1996)

5. Summary

In this study, we reported that Japanese young children show a seemingly mysterious delay in their interpretation of additive *mo*. This is an interesting finding, considering that children produce the additive *mo* in a much earlier stage of language acquisition. The mismatch between comprehension and production of the focus item has been observed in a study of German-speaking children. According to Hüttner et al. (2003), young German children (age range: 2;11-7;8) failed to give an adultlike interpretation to the focus item *auch* (an equivalent of ‘too’) 30-40% of the time. German children’s production of *auch* begins as early as age 1;5 (Nederstigt 2001). The pattern observed in the acquisition of German generally matches the observations of Japanese children reported in this paper. Comparing our results to studies of English-speaking children’s data, we argued that the responses of the children resulted from choosing a non-adultlike value of the parameter of the interface selection. The current study is a first step of investigation of young children’s interpretation of focus items, which sheds light on relationships between different submodules and interface levels (Chomsky 1995) of human language faculty.

Acknowledgements

I would like to express my gratitude to the children, teachers, and staff of Itakano Day Care Center. Tae Komatsu and Atsushi Yuhaku helped as experimental assistants. Pranav Anand, Yasuo Ishii, Noriko Kawasaki, Nobuhiro Miyoshi, participants of the summer session of the Tokyo Workshop of Psycholinguistics, and visitors of the poster session at the 28th Boston University Conference on Language Development provided insightful comments. Helen Ballhatchet, Chikako Kashiwazaki, Yoko Nagai, and David Notter provided editorial advice during the preparation for the poster session. John Helwig supplied photos for the poster and editorial help. This research project was supported by the Grant for Faculty Research and Education, provided by the Faculty of Economics, Keio University (2002-2004). All errors found in the paper are my own.

References

- Chomsky, Noam. 1995. *The Minimalist Program*. MIT Press; Cambridge, MA.
- Crain, Stephen and Cecile McKee. 1985. The Acquisition of Structural Restrictions on Anaphora. In *Proceedings of NELS 16*. S. Berman, J-W Choe, and J. McDonough, eds. GLSA, University of Massachusetts, Amherst.
- Crain, Stephen, William Philip, Kenneth F. Drozd, Tom Roeper, Kazumi Matsuoka. 1993. Only in Child Language. ms. University of Connecticut.
- Hüttner, Tanja, Hainer Drenhaus, Ruben van de Vijver, Jürgen Weissenborn. 2003. The Acquisition of the German Focus Particle *auch/too*: Comprehension does not Always Precede Production. Poster presented at the 28th Boston University Conference on Language Development.
- Rooth, Mats. 1985. Association with Focus. Ph.D. dissertation. University of Massachusetts at Amherst.
- Rooth, Mats. 1996. Focus. In Lappin, Shalom. ed. *The Handbook of Contemporary Semantic Theory*. Blackwell; Cambridge, MA, 271-297.
- Wexler, Kenneth and M. Rita Manzini. 1987. Parameters and Learnability in Binding Theory. In Thomas Roeper and Edwin Williams. eds. *Parameter Setting*. Reidel: Dordrecht, 41-76.

Appendix: List of Target Sentences and the Situations Described in the Stories

Subject + *mo* stories

- (a) Kauboi-mo kujira-o hippari-mashi-ta
cowboy-ADD whale-ACC pull-POLT-PAST
'The cowboy pulled the whale, too.'

Rabbit	Troll	Cowboy
Car	Airplane	Boar Whale

- (b) Osarusan-mo tororu-o fuki-mashi-ta.
Monkey-ADD Troll-ACC wipe-POLT-PAST
'The monkey wiped (and dried) Troll, too.'

Duck	Pink Panther	Monkey
Zebra	Tiger	Panda Bear Troll

- (c) Simaumas-an-mo okashi-o mitsuke-mashi-ta.
Zebra-ADD snack-ACC find-POLT-PAST
'The zebra found the snack, too.'

Bear	Hippo	Zebra
bread	ham	coffee snack

Object+*mo* stories

- (d) Pu-san-ga futon-mo motteki-mashi-ta
Winnie-the-Pooh-NOM comforter-ADD bring-POLT-PAST
'Winnie-the-Pooh brought a comforter, too.'

Piglet	Timon	Pooh
comforter roll	comforter orange	comforter

- (e) Usagisan-ga kureyon-mo motteki-mashi-ta.
 Rabbit-NOM crayon-ADD bring-POLT-PAST
 ‘The rabbit brought a crayon, too.’

Girl	Duck	Rabbit
crayon stilts	crayon bicycle	crayon

- (f) Kumasan-ga hottomiruku-mo totteki-mashi-ta.
 Bear-NOM hot milk-ACC take-and-come-POLT-PAST
 ‘The bear took hot milk, too.’

Giraffe	Girl	Bear
milk roll	milk egg	milk