Elided Conjunction in Child Japanese and Its Implications

1. Introduction: This study attempts to see whether Japanese children have adult-like knowledge of ellipsis by testing a difference between overt and covert conjunctions. There are several studies that investigate children's knowledge of ellipsis in Japanese (Sugisaki 2007, Matsuo 2007, Otaki 2014 etc.). A typical way to see it is to investigate whether children can access interpretations that cannot be obtained from null pronouns (*pro*). For example, a sloppy reading in (1) cannot be derived by *pro*, which would force a strict reading in (1), but can through argument ellipsis as in (2) (Oku 1998). Sugisaki (2007) reports that children (age 3-5) can access the sloppy reading in (1), which shows that they have knowledge of ellipsis.

Although such a sloppy reading might be rare in input data, it would not be difficult for children to access a sloppy reading in sentences like (1b) because it has the same interpretation as its overt counterpart. For instance, children could easily obtain the sloppy reading in (1) by comparing the elided sentence (1b) with the preceding sentence (1a) and identifying the missing part in (1b) as *self's tricycle*. Past studies of ellipsis in acquisition have used sentences like (1), which do not show overt/covert differences in their interpretation. Nevertheless, it is not always the case that ellipsis provides the same interpretation as overt counterparts. Funakoshi (2013) argues that Japanese overt conjunction *-mo-mo* is different from its covert counterpart in terms of scope interpretation. The overt conjunction in (3a), like a positive polarity item (PPI; Goro 2007), cannot take scope under negation, while its covert counterpart can, as shown in (3b). Thus, in order to investigate whether children truly have adult-like knowledge of ellipsis, it is further required to examine children's interpretations of elided sentences that have an overt/covert difference in their interpretation. This paper addresses the issue by investigating children's interpretation of sentences like (3).

2. Syntactic account: Funakoshi (2013) proposes that the Japanese *-mo-mo* conjunction has a strong feature [F], which induces the PPI property of the overt conjunction. This strong feature can be checked either by overtly moving to a functional projection *f*P, which is located above NegP, (cf. Goro 2007) or by being PF-deleted in-situ (Chomsky 1995; Lasnik 1999). Therefore, if the conjunction *-mo-mo* is not elided as in (3a), it must take scope over negation to check its feature as illustrated in (4a). On the other hand, it can stay within VP if it is deleted at PF as in (4b), which induces the 'not > and' reading in (3b).

Thus, a prediction under this approach is that if children's ellipsis can delete a strong feature like adults' can, then they should be sensitive to the overt/covert distinction in the conjunction. Goro (2007) reported that Japanese children (age 3-6) can correctly assign an 'and > not' reading to sentences with an overt conjunction like (3a). Given this, the present experiment studies whether they know the overt/covert distinction for Japanese conjunctions.

3. Experiment: 10 Japanese adults and 10 Japanese children (age 5;3-5;11/ Mean 5;8) participated. The task was truth value judgement. There were two control items like (3a) and two target items like (3b). A sample story is given in (5), where a 'not > and' reading (cf. 3b) becomes true and an 'and > not' reading false. Thus, if participants know that the 'not > and' interpretation is available only when a conjunction is covert, then they should accept (3b) in (5), while they reject (3a). Results are as follows. On control items both adults and children correctly rejected (3a) (100%=20/20), which replicates Goro's findings. On the other hand, on target items the adults clearly accepted (3b) at the rate of **95%(=19/20)**, while the children accepted it at the rate of **only 35%(=7/20)**. This shows that Japanese children around age 5 have a strong tendency to assign an *'and > not'* reading to sentences like (3b) in the same way as (3a), even though adults assign a 'not > and' reading.

4. Implications: This result suggests that Japanese children around age 5 do not know that ellipsis can delete a strong feature. In this sense, their knowledge of ellipsis is not the same as adults'. The children's non-adult-like performance on the 'not > and' reading in (3b) is expected if we assume the Semantic Subset Principle (SSP; Geçkin, Crain, & Thornton 2016). The SSP states that children initially adopt a scope assignment that generates a "subset" truth condition. As shown in Table 1, the truth conditions of the 'not > and' reading constitute a "superset" of the truth conditions of the 'and > not' reading. Thus, the children's insensitivity to the 'not > and' reading in (3b) seems to fit well with the SSP. In the same way, Geçkin, Crain, & Thornton (2016) argue that the SSP can capture the children's difficulty in accessing 'or > not' readings (Goro 2007) since the truth conditions of the 'or > not' reading constitute a "superset" of the truth conditions of the 'not > or' reading. With respect to this approach, our finding provides new evidence that children's scope assignment with logical connectives supports the SSP.

(1) a. Pandasan-ga zibun-no sanrinsya-o aratte-ru yo.
panda-NOM self-GEN tricycle-ACC wash-PRES PRT
lit. 'The panda$_1$ is washing self$_1$'s tricycle.'

b. Butasan-mo *e* aratte-ru yo.
pig-also wash-PRES PRT
Sloppy: 'The pig$_2$ is also washing self$_2$'s tricycle (= the pig's tricycle).' (cf. 2)
Strict: 'The pig is also washing it (= the panda's tricycle).'

(2) Argument Ellipsis: Pig [$_{VP}$ [~~$_{DP}$ self's tricycle~~] wash]

(3) Zibanyan-wa ninjin-mo piiman-mo tabe-re-ta kedo,
Zibanyan- TOP carrot-also pepper-also eat-can-PAST but
'Zibanyan was able to eat the carrot and the pepper but...,'

a. Pengin-wa ninjin-mo piiman-mo tabe-re-nak-atta.
Penguin-TOP carrot-also pepper-also eat-can-NEG-PAST
'the penguin was able to eat neither the carrot nor the pepper.' *(not > and) / (and > not)

b. Pengin-wa *e* tabe-re-nak-atta.
Penguin-TOP eat-can-NEG-PAST
'the penguin wasn't able to eat the carrot or wasn't able to eat the pepper.' (not > and)
'the penguin was able to eat neither the carrot nor the pepper.' (and > not)

(4) a. (and > not): … [$_{\mathcal{f}P}$ [-mo-mo$_{[F]}$] [$_{NegP}$ [$_{VP}$ t V] Neg] *f*]
b. (not > and): … [$_{\mathcal{f}P}$ [$_{NegP}$ [$_{VP}$ ~~[- mo- mo$_{[F]}$]~~ V] Neg] *f*]

(5) A sample story:
"Zibanyan and Penguin are participating in an eating game, and they try to eat both a carrot and a pepper. If they can eat both of the vegetables, then they receive a gold medal. If they can eat one of the vegetables, but not both of them, then they get a blue medal. If they cannot eat either of them, they receive a black cross." When they start to eat, a screen appears in front of them, and the participant cannot see what happens behind the screen. After that, Zibanyan appears with a gold medal, but Penguin appears with a blue medal.

Correct Answer for (3a): Reject (and > not)
Correct Answer for (3b): Accept (not > and) or Reject (and > not)

Table 1: Truth conditions of the scope relations between negation and 'A and/or B'

scope \ situation	¬ A & B	A & ¬ B	¬ A & ¬ B	A & B
not > and (superset)	**T**	**T**	**T**	F
and > not (subset)	F	F	**T**	F
or > not (superset)	**T**	**T**	**T**	F
not > or (subset)	F	F	**T**	F

E.g. A/B stands for what X ate. ¬ A/¬ B stands for what X didn't eat.

Selected References:

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