

A Picture Selection Task for the Acquisition of Japanese Disjunction

Background. Ever since Goro and Akiba (2004), it has been rather uncontroversially assumed that Japanese-acquiring children undergo a period in which they have a non-adultlike grammar with regards to negative sentences with disjunction. This predominant view, however, has been recently challenged (Sano et al. 2024). They argue that the method in Goro and Akiba (2004), and all subsequent studies, namely the medal system, has a pragmatic shortcoming. They also show that with their improved methodology, children do in fact give adultlike answers. They thus argue that Japanese speaking children have an adultlike grammar by the age of five. In this study we employ a new design with a picture-selection task, and suggest a more complex situation; children have a grammar that is ambiguous between an adultlike, disjunctive interpretation, and a non-adultlike, conjunctive interpretation.

Methods. Negative sentences with disjunction, in principle, have two possible interpretations: the *disjunctive interpretation* ($\neg p \vee \neg q$) and the *conjunctive interpretation* ($\neg p \wedge \neg q$) (1). Once we assume, as proposed by Sano et al. (2024), that Japanese-speaking children have access to the adultlike, disjunctive reading, a question arises whether their grammar ONLY computes the adultlike interpretation, or is ambiguous between the two. We observe that this is virtually impossible to test with a truth value judgment task (TVJT). As the conjunctive reading is true in all situations in which the disjunctive reading is true (2), it is not possible to devise a condition in which ONLY the disjunctive reading is true. We thus present data from an ongoing study employing a **picture selection task**. To the extent of our knowledge, previous studies on the matter all used a TVJT. For that reason, our results have empirical significance for the mere fact that it is the first study with a picture selection task. In the experiment setup, three animals on the screen eat some (but not all) of the vegetables provided to them. This is followed with the test sentence, crucially with a wh-question. (e.g. *Someone didn't eat the pepper or didn't eat the carrot. Who is it?*) The child's task is to choose the correct animal(s). The crucial test items included one 'disjunctive animal', one 'conjunctive animal', and one distractor (3). As children were instructed to choose all the correct animals, we had the following predictions. If children have an adultlike, disjunctive grammar, they should either only choose the disjunctive animal (through a S(calar) I(mplication)) or both the disjunctive and the conjunctive animal (without an SI). If children have a non-adultlike, conjunctive grammar, they should choose only the conjunctive animal.

Findings. & Discussion. So far, eleven Japanese speaking children (5;04~6;02, M=5;09) have participated in the experiment. Out of the seven children who passed the control condition, five children showed an overwhelmingly conjunctive answer pattern (4). Although our findings are preliminary, we argue that this already shows that the situation with Japanese speaking children is more complex than what was previously proposed. We argue that our findings show that children CAN nonetheless resort to a non-adultlike, conjunctive interpretation, although they CAN have access to an adultlike, disjunctive interpretation, for instance with a TVJT (Sano et al. 2024). This can be explained if they have an ambiguous grammar between the disjunctive and conjunctive readings. It is worth mentioning that the crucial test items in Sano et al. (2024) were all 'yes' items. Between the two readings, children might resort to a disjunctive one with a TVJT, because they are charitable towards the puppet (Gualmini et al. 2008). In the presentation, we will present a completed dataset and discuss the strategies children employ when they don't have any pressure towards the disjunctive reading (namely, with a picture selection task.)

(1) [The disjunctive and the conjunctive reading and their grammaticality in adult Japanese]

Hanako-ga ringo-ka banana-o tabe-nakat-ta.

Hanako-NOM apple-OR banana-ACC eat-NEG-PAST

- a. [Disjunctive: (OR>NEG)] ‘Hanako did not eat the apple or did not eat the banana.’
 b. [Conjunctive: *(NEG>OR)] (Intended.) ‘Hanako ate neither the apple nor the banana.’

(2) Table 1. Truth values of the disjunctive and the conjunctive reading

Not P	Not Q	Disjunctive ($\neg p \vee \neg q$)	Conjunctive ($\neg p \wedge \neg q$)
1	1	1	1
1	0	1	0
0	1	1	0
0	0	0	0

(3) [Test Sentence]

Dareka-ga ninjin-ka nasu-o tabe-nakat-ta ne. Dare-kana?

Someone-NOM carrot-OR eggplant-ACC eat-NEG-PAST SFP who-Q

‘Someone didn’t eat the carrot or didn’t eat the eggplant. Who is it?’



distractor



disjunctive



conjunctive

(4) Table 2. Preliminary Results

	age	Answer pattern (out of 6 items)		
		Only the disjunctive Animal	Disjunctive & Conjunctive Animal	Only the conjunctive Animal
Conjunctive Children	6;01;01	0	0	6
	5;10;05	1	0	5
	5;04;03	0	1	5
	6;02;21	0	0	6
	5;07;29	0	0	6
Disjunctive Children	5;10;11	0	5	1
	5;08;10	4	1	1

Selecter Referecnes

Goro, T., & Akiba, S. (2004). The acquisition of disjunction and positive polarity in Japanese.

Sano, T., Ohba, A., Yusa, M., & Deen, K. (2024). Reconsidering the Semantic Subset Principle: Japanese Children Do Have Wide Scope of Disjunction under Negation. Gualmini, A., Hulsey, S., Hacquard, V., and

Fox, D. (2008). The question–answer requirement for scope assignment.