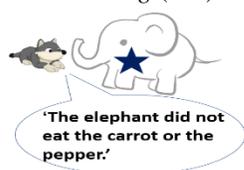


# Scopal interaction of negation and conjunction in English-dominant Japanese heritage speakers' grammar

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For sentences like *the elephant did not eat the carrot and the pepper*, negation and conjunction may interact in two ways (Szabolsci, 2002): the elephant did not eat the carrot AND/OR did not eat the pepper. The two interpretations are not equally accessible across languages: negation scopes over disjunction (Not (A and B)) in English while disjunction scopes over negation ((Not A) and (Not B)) in Japanese. Note that the Japanese interpretation entails the English interpretation in logic. We conducted an experimental study to address the following questions: (i) do English-dominant heritage speakers of Japanese know that negation scopes over conjunction in English?(ii) if yes, do they also know that it is opposite in Japanese? Our task was adapted from Goro & Akiba (2004), where participants first read a story about an eating contest for animals: if they eat a carrot and a pepper, they get a crown. If they only eat one vegetable, they get a star. If they do not eat any vegetables, they get a warning sign. For each experimental trial, participants listened to a dog's sentence and judged whether his sentence was true or false for the given picture. Our critical items are those involving the conjunction/disjunction and negation in the star (one vegetable) and warning sign (no vegetable) situations. There are two factors (a. whether the logical operator is *and* or *or*; b. whether the animal eats one vegetable or nothing) and four conditions: a. or-one-veg (OO), b. and-one-veg (AO), c. or-no-veg (ON) and d. and-no-veg (AN)) (See (1)). Experiment I involves OO and AO and Experiment II involves ON and AN.

(1) 1. *or-one-veg* (OO)



2. *and-one-veg* (AO)



3. *or-no-veg* (ON)

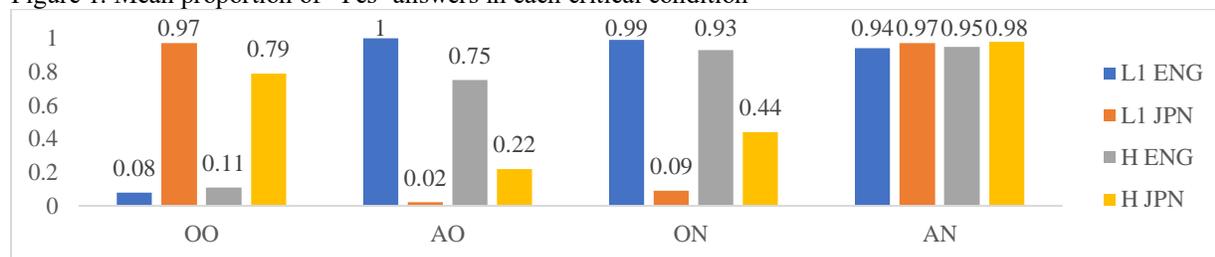


4. *and-no-veg* (AN)



Each condition has 8 different sentences and each experiment has 2 different lists. Each list has 64 fillers. For every experiment, heritage participants saw the English list before the Japanese list. In addition, a Japanese fill-in-the-blank test and LexTale (Lemhöfer & Broersma, 2012) were used to measure our participants' Japanese and English proficiency levels. A total of 20 English-dominant Japanese heritage speakers, who grew up in the US, participated in this experiment. There were also 21 L1 English speakers and 8 L1 Japanese speakers who participated as native controls. The group results are summarized in Figure 1.

Figure 1. Mean proportion of 'Yes' answers in each critical condition



The heritage participants' individual results revealed that 10 (50%) participants consistently accepted AO in English but consistently rejected AO in Japanese, which suggests that they are able to make a distinction between English and Japanese. Moreover, 3 (15%) participants consistently accepted AO in both languages and 5 (25%) participants consistently rejected AO in both languages, which implicates crosslinguistic influence. Whether individual participants' Japanese and English proficiency levels matter will be discussed. (Word Count: 460)