

## Negative disjunctive sentences in child and adult Romanian: A preference for strong interpretations

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**Background** It is well-known in the literature on disjunction and negation that there is cross-linguistic variation in how sentences like *The hen didn't push the train or the boat* are interpreted [1-6]. On the one hand, in languages like English, the sentence *The hen didn't push the train or the boat* allows both a *neither* interpretation for adults (*The hen didn't push the train and the hen didn't push the boat*) and a *not both* interpretation (*The hen didn't push the train or the hen didn't push the boat, possibly neither*), while in languages like Japanese, Mandarin Chinese, and Turkish, it allows a *not both* interpretation (*The hen didn't push the train or the hen didn't push the boat, possibly neither*). This difference has been attributed to a Disjunction Parameter [5], according to which disjunction is a PPI only in certain languages, such as Japanese. Interestingly, developmental research has shown that unlike adults, and similarly to English-acquiring children, Japanese, Mandarin and Turkish-speaking children interpret negated disjunction as *neither* [7]. This has been explained by invoking the Semantic Subset Principle [8]: children start out with the stronger *neither* interpretation, which entails the *not both* interpretation.

**Disjunction and negation in Romanian** Data from a sentence continuation task [9] suggests the availability of both the *neither* and the *not both* interpretations in adult Romanian. No study has yet investigated how negative disjunctive statements are interpreted by Romanian children. If children observe the Semantic Subset Principle, they are predicted to assign only the *neither* interpretation; if they are adult-like, they should access both *neither* and *not both* interpretations.

**Experiment** (5-year-old children n=32; Adult n=40) We conducted a Truth Value Judgment Task adapted from [10]. Participants were introduced to a puppet, Bibi, who made guesses about what would happen. On each trial, there was an animal and four objects it could potentially act upon. Participants were told the animal was moody so he sometimes did something with one object or more, but sometimes he would do nothing. Then they heard Bibi's guess, saw the outcome, and had to say whether Bibi had guessed well. All participants saw 35 sentences: 3 practice trials, followed by 32 experimental items (24 targets, 2 controls, 6 true/false fillers). Positive and negative disjunctive sentences (*The monkey picked the snowdrop or the rose/The giraffe didn't pick the snowdrop or the rose*) were presented in 0-disjunct-true (ODT) contexts (x4), where no disjunct was true (*The giraffe picked none of the flowers*), 1-disjunct-true (1DT) contexts (x4) where only one disjunct was true (*The giraffe picked only the snowdrop*), and 2-disjunct-true (2DT) contexts (x4) where both disjuncts were true (*The giraffe picked both flowers*) (see Fig. 1).

**Results** For the positive disjunctive statements, most participants (21/32 children, 26/40 adults) were inclusive, accepting the utterance in both 1DT and 2DT contexts at least 3 times out of 4. For the negative disjunctive statements, 25/40 adults (62.5%) consistently opted for a *neither* interpretation, accepting the negative disjunctive statement in ODT and rejecting it in 1DT and 2DT, 2 adults (7.5%) opted for a *not both* interpretation, accepting the negative disjunctive statement in ODT and 1DT and rejecting it in 2DT, while 11 (27.5%) showed mixed behavior (Table 1). Of the child participants, 14/32 (43.75%) consistently opted for a *neither* interpretation, 2 (6.25%) opted for a *not both* interpretation, while 12 (37.5%) showed mixed behavior. The rest gave inconsistent responses. Figs. 2 and 3 display the overall proportion of yes answers per condition. For each scenario (ODT, 1DT, 2DT), we ran generalized mixed effects models including answer as a dependent variable, Group as a fixed effect, and random effects per Participant and Item; no difference was observed between adults and children in the negative condition.

**Discussion** Our results suggest that *neither* is the preferred interpretation: both Romanian children and adults generally responded on the basis of the *neither* interpretation of negative disjunctive statements, rather than the *not both* interpretation. The fact that some children prefer *neither* is consistent with the Semantic Subset Principle [8], which takes the *neither* interpretation to be the default. Interestingly, for both groups, a considerable number of participants displayed mixed behavior, showing that some participants were able to access a *not both* interpretation.

Negative disjunctive sentences thus exhibit some interpretive variability both in child and adult Romanian, as seen in [9]. On the whole, however, our study suggests that the two interpretations are not equally available, with *neither* being preferred over *not both*. This can be explained in terms of The Strongest Meaning Hypothesis [11], favoring strong over weak meanings.

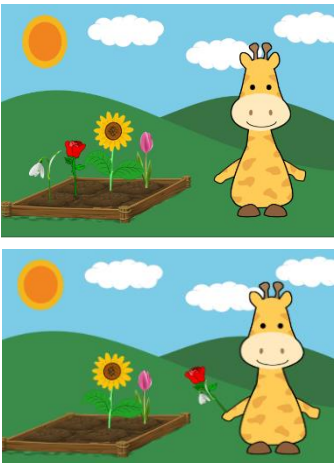
SCENE 1: There once was a giraffe who sometimes picked flowers and sometimes did not. As she was walking, she saw some beautiful flowers. She could choose to pick a flower, she could choose to pick several flowers, she could choose to pick nothing. Let's see if Bibi can guess what happened next!

SCENE 2: EXPERIMENTER: Bibi, tell us, what happened next?

BIBI: *Girafa nu a cules ghiocelul sau trandafirul.*  
'The giraffe did not pick the snowdrop or the rose.'

EXPERIMENTER: Let's see if Bibi's right!

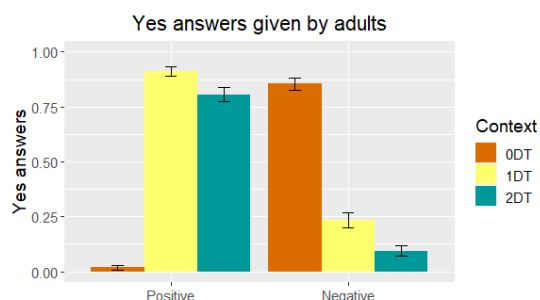
SCENE 3: (following seeing a picture where the giraffe is holding both a snowdrop and a rose) Look, the giraffe picked this and this! Did Bibi guess well?



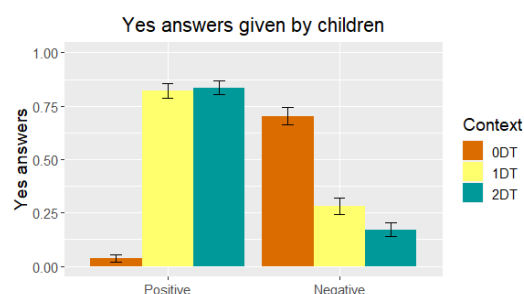
**Figure 1.** Example of an item in 2DT

**Table 1.** Participant type per scenario

Interpretation	0DT	1DT	2DT
Neither	yes	no	no
Not_both	yes	yes	no
Only_one	no	yes	no



**Figure 2.** Yes answers provided by adults



**Figure 3.** Yes answers provided by children

**References:** [1] Szabolcsi 2002, [2] Goro & Akiba 2004, [3] c, [4] Goro 2011, [5] Crain 2012, [6] Shimada 2014, [7] Geckin et al. 2017, [8] Crain et al. 1994, [9] Lungu et al. 2021, [10] Tieu et al. 2017 [11] Darymple et al. 1998