

## Strong NPIs vs. n-words: acceptability experiment in Czech

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**Background.** In the analysis of negation, it is common to distinguish (at least) three different groups of expressions licensed by negative-like environments: weak NPIs (*anything*, (1a)), strong NPIs (punctual *until*, (1b)) and n-words. The last group is restricted to the so-called negative concord (NC) languages, as is Czech, (1c).

- (1) a. John didn't say anything.  
b. John didn't leave until his birthday.  
c. Neznám tady nikoho  
Not-know here nobody  
'I know nobody here.'

Czech

While the licensing conditions of strong NPIs are commonly characterized in semantic terms (e.g., Zwarts, 1996, Gajewski, 2011) and the distribution of n-words is described in syntactic terms (Zeijlstra, 2004, a.o.) it is also often observed that the two groups are closely related (Laka, 1990, a.o.). For example, under Gajewski's account, strong NPIs are licensed if the assertive component as well as the presuppositional/implicated component are downward-entailing (DE). Of all the standard DE triggers, this leaves only negative expressions (*no*, *never* etc.), negation and the preposition *without* as potential licensors. The same elements are known to license n-words (see, e.g., Giannakidou and Zeijlstra, to appear). This opens up a question whether NC languages have strong NPIs as a separate class, not assimilated to n-words. If so, do speakers agree on which elements belong to n-words and which elements belong to the group of strong NPIs?

**Experiment.** We designed an experiment to target these questions. In the experiment, run in Czech (a strict NC language), participants had to judge acceptability of sentences on a Likert scale, 1–5.

The experiment tested two expressions: (i) the adjective *žádný* 'no', which is an n-word, and (ii) the emphatic expression *ani (jeden)* 'even (one)'. In the Czech linguistic tradition, it is assumed that the latter expression in its emphatic meaning is licensed by negation (Havránek et al., 1960), which would suggest that it also is an n-word. However, we hypothesized that it is a candidate for a strong NPI given that 'even'-emphasizers are NPIs in other languages (Lahiri, 1998).

There are two main differences between n-words and strong NPIs: (i) strong NPIs can appear in clauses embedded under negated neg-raising (NR) predicates (Gajewski, 2007, a.o.); n-words in strict NC cannot be separated from the morphological realization of their licensing negation (Zeijlstra, 2004), (ii) strong NPIs must be in the scope of negation while n-words can outscope negation, as long as they are in the same clause as negation; in particular, n-words can appear as fragment answers, which should not be possible for (strong) NPIs. We used both tests to investigate the status of *ani* (compared to the baseline *žádný*), see (2) and (3) for an example of an item. Three other conditions appeared in the experiment. First, *ani/žádný* appeared under 'without', (4) (a baseline condition since strong NPIs/n-words should be equally acceptable). Second, we let *ani/žádný* modify expressions on high end-points of a scale, (5). This should not be possible for *ani* if it was a (strong) NPI since NPIs are standardly minimizers (cf. Chierchia, 2013). In contrast, *žádný* should not be excluded in this context. (Finally, the experiment tested whether *ani/žádný* can appear in idiomatic constructions, but the condition is not relevant here.) In total, there were  $5 \times 2$  conditions. 25 stimuli were

created, along with 25 fillers. 55 participants filled in the experiment, 1 participant was excluded due to unreliable responses to fillers.

- (2) a. Nový asistent nechce, aby **žádný** student vyletěl u zkoušky. (NR)  
 ‘The new assistant professor does not want any student to fail the exam.’  
 b. Nový asistent nechce, aby **ani** jeden student vyletěl u zkoušky.
- (3) a. A: Kdo vrátil včera knížky do fakultní knihovny? B: **Žádný** student. (Ellipsis)  
 ‘A: Who returned books to the faculty library yesterday? B: No student.’  
 b. A: Kdo vrátil včera knížky do fakultní knihovny? B: **Ani** jeden student.
- (4) a. Prodal mu dvě šachové sady bez **ani** jednoho krále. (Without)  
 ‘He sold him two chess sets without a king.’  
 b. Prodal mu dvě šachové sady bez **žádného** krále.
- (5) (...) nestal se **ani/žádným** kardinálem. (Likelihood)  
 ‘He didn’t become even a cardinal.’

**Results & discussion.** We analyzed the data in a mixed-effects linear model with subject and item intercept+slope random effects. The dependent variable was a by-subject z-transformed response. The independent variables were ENVIRONMENT (ref-level: WITHOUT), EXPRESSION (ref-level:ŽÁDNÝ) and their interaction. We found a negative main effect of NR ( $t = -4.1$ ). The model also revealed a negative interaction of ANI by ELLIPSIS and LIKELIHOOD ( $t = -2.6, t = -4.7$ ) and a positive interaction of ANI by NR ( $t = 2.4$ ). The interactions show that *ani* is worse in ellipses/the likelihood constructions than n-words, but better under NR predicates than n-words (see Fig. 1). The results taken together strongly support the position that *ani* (*jeden*) ‘even (one)’ is a strong NPI and not an n-word and that strong NPIs co-exist with n-words in Czech. But given the fact that the evidence to consider *ani* a strong NPI is very limited (e.g., the only positive evidence would be that the particle might appear under negated NR predicates), could speakers differ wrt their categorization of *ani*? To this end, we checked whether ANI subject-random slopes correlate in the LIKELIHOOD/ELLIPSIS/NR conditions. The idea was that some speakers might accept LIKELIHOOD/ELLIPSIS if *ani* is an n-word for them; but then, the same speakers should reject NR with *ani*. There was a nearly significant negative correlation between such-constructed LIKELIHOOD and NR ( $t = -1.9, p = .065$ ). Nothing was observed in the ELLIPSIS-NR pair ( $p > .1$ ). We also considered a model in which mean response (per person) to LIKELIHOOD with ANI and to ELLIPSIS with ANI was a predictor of NR-responses. The former mean response was a significant predictor ( $t = -2.1$ ). We take these data to be inconclusive, but they suggest that participants more sensitive to the minimizer semantics of *ani* are more likely to treat it as a strong NPI. Thus, the lexical semantics might be an important factor when categorizing this expression as an NPI.

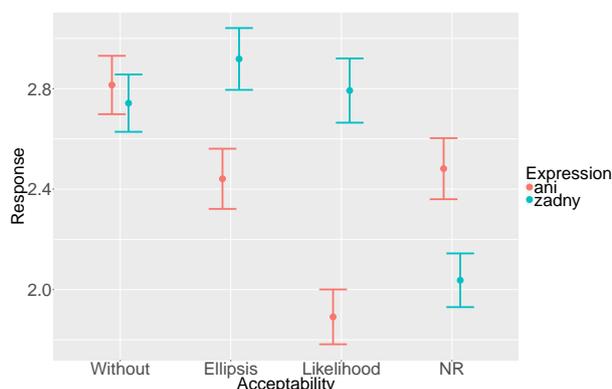


Fig. 1: Responses (mean and SE)

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