Negation in Czech polar questions

Background Negative polar questions (neg-PQs) are known to raise non-trivial issues at the syntax–semantics interface, stemming from the interactions among interrogative semantics (polar alternatives), the ambivalent status of negation (inner vs. outer), and the associated implications (evidential or epistemic bias); see e.g. Ladd 1981; Buring & Gunlogson 2000; van Rooij & Šafářová 2003; Romero & Han 2004; Repp 2009. It has been argued that English non-preposed negation (*Did John not come?*) is obligatorily interpreted as inner (propositional), while preposed negation (*Didn't John come?*) is ambiguous between inner and outer (Romero & Han 2004). Czech negation is different from the English one in two important respects: (i) it is always attached to the verb (making the preposed vs. non-preposed contrast unavailable in syntactically interrogative questions) and (ii) it is part of the strict negative concord system, which, as argued by Zeijlstra (2004), amounts to the negative prefix always being semantically uninterpretable.

Proposal Building on Repp (2006, 2009, et seq), we extend Zeijlstra's (2004) analysis of Czech negation to its use in neg-PQs. In line with Zeijlstra, we assume that the uninterpretable negative prefix (carrying the [uNeg] feature) is licensed under agreement with a covert but interpretable c-commanding operator (carrying [iNeg]). This operator is, by default, the standard propositional (aka inner) negation. In neg-PQs, however, an additional commitment-related operator may be activated, namely FALSUM (Repp 2006) (aka outer negation), which introduces the issue of whether the question prejacent does *not* belong to the common ground (cf. VERUM). (The use of FALSUM/VERUM may in turn go hand in hand with a specific bias profile of the PQ.) Assuming that there are no "outer negative concord items", we stipulate that FALSUM can license only the negative verb. We further assume that a negative verb triggers the insertion of inner negation, or FALSUM, but not both at the same time. Using negative concord items (NCIs) and positive polarity items (PPIs) is thus a good way to test for the presence of inner vs. outer negation, respectively (e.g., Ladd 1981; Büring & Gunlogson 2002; Romero & Han 2004; Geist & Repp to appear).

Predictions As detailed in (1), in syntactically interrogative neg-PQs in Czech (e.g. (2B)), the preposed negative verb outscopes inner negation and can thus only be licensed by FALSUM (located in a StrengthP; Repp 2006); in syntactically declarative neg-PQs (e.g. (2B′)), the verb is low enough to be licensed either by inner negation or by FALSUM. We further expect that V1 (interrogative) questions require no evidential bias, but non-V1 (declarative) questions always do (Štícha 1995, Gunlogson 2002, Rudin 2022; a.o.).

Experiment Our experiment was a naturalness judgment task (7-point scale; completely unnatural/1 to completely natural/7) with a $2 \times 2 \times 2$ design (see Tab. 1). We manipulated 3 variables, each with 2 possible values. The CONTEXT was either neutral (neither p nor $\neg p$ is contextually implied; (2A)), or neg-biased (previous context implies $\neg p$; (2A′)). The VERB POSITION was either initial (V1) (preceding clitics and an overt subject; (2B)), or not (non-V1; (2B′)), which in turn was a proxy of interrogative vs. declarative questions. The INDEFINITE used (a proxy for inner vs. outer negation) was either an NCI (*žádný*) or a PPI (*nějakýý*). All variables were manipulated within items/subjects. We constructed 32 items like (2) and mixed them with 50 fillers (containing additional subexperiments). The stimuli were distributed on lists using the Latin Square design and the order of presentation was pseudo-randomized. 75 Czech native speakers took part in the experiment. The task was run online on L-rex (Starschenko & Wierzba 2023).

Results and discussion The results are presented in Fig. 1 and Tab. 1. We fitted two Cumulative Link Mixed Models (clmm function of the ordinal package of R; Christensen 2022), one for each value of VERB POSITION, using CONTEXT, INDEF (both sum-coded), and their interaction as fixed effects and random intercepts for items and participants as random effects. In V1, the use of PPIs (= FALSUM) is more natural than NCIs (= inner) (main effect of INDEF; $z = -15.674$, $p < .001$), in line with our predictions. The naturalness is further modulated by CONTEXT (interaction of CONTEXT and INDEF; to be discussed). In non-V1, NCIs are overall more natural than PPIs (main effect of INDEF; $z = 8.231$, $p < .001$), but both NCIs (= inner) and PPIs (= FALSUM) are comparatively natural (in line with our predictions), as long as the negative evidential bias is supplied, as expected for declarative questions (main effect of CONTEXT; $z = 14.439$, $p < .001$).

(1) a. $[_{\text{StrengthP}}$ FALSUM$_{[\text{iNeg}]}$ $[_{\text{CP}}$ NEG-V$_{[\text{uNeg}]}$ $[_{\text{TP}}$ SUBJECT t_V ...]]] preposed V (V1)

b. $[_{\text{StrengthP}}$ {FALSUM$_{[\text{iNeg}]}$} $[_{\text{CP}}$ ... $[_{\text{TP}}$ SUBJECT {OP$_{[\text{iNeg}]}$} NEG-V$_{[\text{uNeg}]}$ ...]]] non-preposed V (non-V1)

(2) A: Jana má na zahradě záhon, **který vybudovala před rokem**. neutral
Jana has in garden garden.bed, which built before year
'Jana has a garden bed, which she built a year ago.'

A′: Jana má na zahradě záhon, **kam zasadila zeleninu**. neg-biased
Jana has in garden garden.bed, where planted vegetables
'Jana has a garden bed, where she planted vegetables.'

B: **Nezasadila** tam Jana {**žádné** / **nějaké**} květiny? V1
NEG.planted there Jana DET.NCI DET.PPI flowers

B′: Jana tam **nezasadila** {**žádné** / **nějaké**} květiny? non-V1
Jana there NEG.planted DET.NCI DET.PPI flowers
'Didn't Jana / Did not Jana / Jana didn't plant there any / some flowers?'

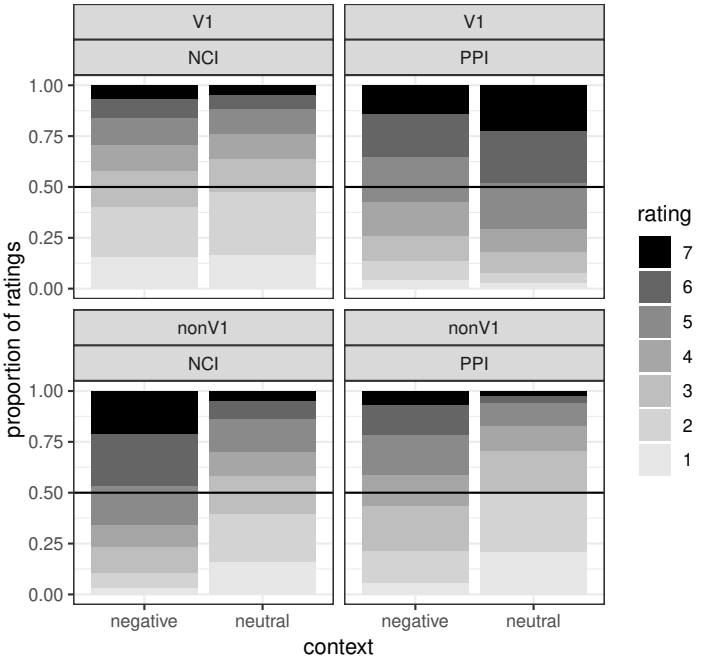

Fig. 1: Raw results
(horizontal line cuts through median rating)

	CONTEXT	V1	INDEF	med
a	neg-biased	+	NCI	3
b	neutral	+	NCI	3
c	neg-biased	+	PPI	5
d	neutral	+	PPI	5
e	neg-biased	−	NCI	5
f	neutral	−	NCI	3
g	neg-biased	−	PPI	4
h	neutral	−	PPI	2

Tab. 1: Experimental conditions and their median ratings

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