

Particle responses to negative polar questions with high vs. low negation

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Negative polar questions can be subdivided into two main kinds, low negation (see (1)) and high negation polar questions (see (2)). Polar questions with low, propositional, negation are used to double-check the negative proposition, whereas high negation questions with extra-propositional negation are used to double-check the positive proposition (Ladd 1981). Previous experimental studies (Domaneschi et al. 2015; Hartung 2007; Roelofsen et al. 2012) have shown that low and high negation questions differ in their felicity conditions in terms of contextual evidence (cf. Büring & Gunlogson 2000) and the speaker's prior belief (cf. Romero & Han 2004).

- (1) Haben die Forstbeamten die Tannen noch nicht untersucht? [low negation]
'Have the foresters not checked the fir trees yet?'
- (2) Haben die Forstbeamten die Tannen nicht schon untersucht? [high negation]
'Haven't the foresters checked the fir trees already?'

The present study addressed low vs. high negation questions as antecedents of response particles. Most theories predict a general difference between the two kinds of negative polar questions with regard to the use and interpretation of particle responses (e.g. Holmberg 2013; Krifka to appear; Repp 2013). We tested this general prediction for the German response particles *ja* (≈'yes') and *nein* (≈'no'). In two acceptability-judgment experiments, participants were presented with short dialogues, consisting of a polar question and a bare particle response, either *ja* or *nein*. In all experimental items, the question was a negative polar question with low negation in Expt. 1 and high negation in Expt. 2. We used the negative vs. positive polarity elements *noch* ('yet') and *schon* ('already') to differentiate low from high negation (see (1) and (2)). Each dialogue was preceded by a scene setting passage, which introduced the two interlocutors and also served to provide an appropriate context for the given question. The scene setting passage also included information on the responding person's epistemic state concerning the proposition under question. This information was manipulated; it either implied that the responding person knows the positive proposition to be true (e.g. checked(foresters, fir trees)) or the negative proposition to be true (e.g. -(checked(foresters, fir trees))), such that (s)he can be expected to either convey the positive (p) or the negative proposition (¬p) as answer to the polar question. Thus, both experiments employed a 2x2 design with the factors EXPECTED ANSWER (p/¬p) and RESPONSE PARTICLE (*ja/nein*). The participants' task was to judge the naturalness and suitability of the response on a rating scale ranging from 1 (very bad) to 7 (very good).

The analysis of the data of Expt. 1 (low negation) revealed a significant interaction between the factors EXPECTED ANSWER and RESPONSE PARTICLE. In the 'expected answer: p' condition, i.e. when the responding person can be expected to reject the low negation polar question, the ratings for *nein* were significantly higher than the ratings for *ja* ($M = 3.52$ vs. $M = 1.72$, 95% CI = ± 0.58). In the 'expected answer: ¬p' condition, i.e. "affirming condition", *ja* was rated slightly higher than *nein* ($M = 4.63$ vs. $M = 4.03$, 95% CI = ± 0.81), but this difference was not significant. A closer data inspection revealed that the participants were not homogeneous in their preference patterns: a majority of participants showed a preference for *ja* over *nein* whereas a notable minority displayed a preference for *nein* over *ja*. Overall, the results of Expt. 1 replicate our previous findings for responses to assertions with sentential negation (Claus et al. 2015; Meijer et al. 2015), with regard to the preference for *nein* over *ja* in rejecting responses and the finding of two subgroups of participants with affirming responses. The preliminary results of Expt. 2 (high negation) also displayed a significant interaction of EXPECTED ANSWER with RESPONSE PARTICLE. In the 'expected answer: p' condition, *ja* received significantly higher ratings than *nein* ($M = 5.96$ vs. $M = 1.97$, 95% CI = ± 0.53). In the 'expected answer: ¬p' condition, *nein* was rated significantly higher than *ja* ($M = 6.45$ vs. $M = 1.54$, 95% CI = ± 0.31), with all participants showing a rather strong preference for *nein* over *ja*.

As predicted, the results obtained for responses to polar questions with high negation (Expt. 2) do not correspond to those obtained with low negation (Expt. 1). Interestingly, the results for high negation are analogous to the results for positive polar questions (from the filler items of Expt. 1 and 2). If the scene setting passage conveyed that the responding person knows the positive proposition to be true ('expected answer: p'), there was a preference for *nein* in responses to low negation questions and a preference for *ja* in responses to high negation questions as well as to positive questions. If, instead, the scene setting passage conveyed that the responding person knows the negative proposition to be true ('expected answer: ¬p'), there were heterogeneous preference patterns for low negation questions, with a majority preference for *ja*, and a strong and homogeneous preference for *nein* with high negation questions as well as with positive questions.

In conclusion, our results provide the first experimental evidence that negative polar questions with high and low negation differ in the preference patterns for response particles. The results are promising with regard to carrying out more precise tests of the answer options of the two kinds of negative polar questions and their theoretical accounts.

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