

Puzzling response particles: an experimental study on German *ja* and *nein* | Claus, Meijer, Repp, Krifka

BACKGROUND. The use of response particles such as *yes* and *no* is clear-cut for non-negated antecedent clauses, such as the assertion in (1a). A *yes* response affirms and a *no* response rejects a non-negated antecedent. For negated antecedents, see (1b), *yes* and *no* are not complementary: they can both be used to affirm or to reject the negated antecedent.

- (1) a. A: *Mary won.* B: i. *Yes, she did.* ii. *#Yes, she didn't.* iii. *#No, she did.* iv. *No, she didn't.*
b. A: *Mary didn't win.* B: i. *Yes, she DID.* ii. *Yes, she didn't.* iii. *No, she DID.* iv. *No, she didn't.*

Two recent approaches to response particles (Farkas & Roelofsen, to appear (=F&R); Krifka, 2013) account for this pattern with competing theoretical analyses. In the **semantic-syntactic feature model of F&R** the choice of response particles depends on two types of features encoding whether the polarity of the response is positive (as in 1a.i, 1b.i/iii) or negative (as in 1a.iv, 1b./iv) [+/-], and whether it agrees with (as in 1a.i, 1b.ii/iv) or reverses (as in 1a.iv, 1b.i/iii) the polarity of the antecedent clause [AGREE/REVERSE]. *Yes* can realize [+] or [AGREE], and *no* can realize [-] or [REVERSE], resulting in a complementary distribution of *yes* and *no* with non-negated antecedents and an overlapping distribution with negated antecedents. F&R propose that [-] is more marked than [+] and that [REVERSE] is more marked than [AGREE]. From this, predictions can be derived w.r.t. preferences for *yes* or *no* as responses to negated antecedents. For example, for affirmative responses, [AGREE, -], a preference for *no* over *yes* is predicted, because *no* realizes the marked feature [-], which, due to its markedness, has a high realization need, whereas *yes* realizes [AGREE], which is unmarked. According to the **anaphoric account of Krifka**, response particles are anaphors that pick up a propositional discourse referent (propDR), introduced by the antecedent clause. *Yes* asserts the picked-up propDR whereas *no* asserts its negation. Negated antecedent clauses are assumed to introduce two propDRs, the negated propDR (NegDR, e.g. 'Mary didn't win') and its non-negated counterpart (PosDR, e.g., 'Mary won'). Both the NegDR and the PosDR can be picked up by *yes* and *no*, resulting in the four possible cases illustrated in (1b). For example, affirming a negated antecedent clause can be realized by *yes* picking up the NegDR and asserting it (1b.ii) or by *no* picking up the PosDR and asserting its negation (1b.iv). Crucially, Krifka furthermore assumes that the two propDRs introduced by a negated antecedent clause differ in saliency, with the PosDR by default being more salient than the NegDR. This is motivated by the idea that negated antecedent clauses are usually used in contexts in which the non-negated proposition is salient already. Since more salient referents are more readily picked up by anaphors than less salient referents, it is predicted that for affirming responses to negated antecedents, *no* should be preferred over *yes* as a default: *no* picks up the salient PosDR whereas *yes* picks up the non-salient NegDR. This prediction is the same as the one of F&R discussed above. Note, however, that the important role that is assigned to saliency in Krifka's account implies the prediction that the preference for *yes* or *no* should be sensitive to the wider discourse context (see below). Experimental studies on the use and interpretation of response particles are sparse. A forced-choice study by Brasoveanu et al. (2013) revealed a preference for English *no* over *yes* in agreeing responses to negated assertions with referential subjects. A trend for this preference pattern was also observed in a further study on English (Kramer & Rawlins, 2012) for acceptability judgments on bare particles as responses to negated polar questions. These results are consistent with both the analysis of F&R and the analysis of Krifka.

AIMS OF PRESENT STUDY. One aim of the present study was to experimentally juxtapose the two accounts, which differ in whether or not they predict effects of the discourse context. Krifka assumes that in contexts in which the NegDR rather than the PosDR, is the salient propDR, the preference pattern should differ from the default. For instance, in (2) the NegDR is assumed to become salient by the negative question preceding the antecedent clause. Krifka predicts a preference for *yes* over *no* here, because *yes* picks up the salient NegDR whereas *no* picks up the non-salient PosDR.

- (2) B: *Which of the mountains on this list did Reinhold Messner not climb?*
A: *Let me see... He did not climb Cotopaxí in Ecuador.* B: *Yes (he didn't). / No (he didn't).*

The semantic-syntactic feature model of F&R would still predict a preference for *no* over *yes*: changing the context preceding the antecedent does not affect the proposed features. The present study focuses on German as its second goal was to gain more general insight w.r.t. preference patterns of German response particles. The German response particle system, which up to now has not been experimentally investigated, differs from English in that it is a three particle system. Besides *ja* and *nein*, it includes the particle *doch* for rejecting responses to negated antecedent clauses. According to F&R's model, *doch* is a specialized particle for the most marked feature combination, [REVERSE,+]. *Ja* and *nein* correspond to *yes* and *no* in their general feature realization potential. Due to the presence of *doch* in the system, both *ja* and *nein* are assumed to be blocked in rejecting responses to negated antecedents. Krifka, in contrast, supposes that *doch* blocks *ja* in picking up a PosDR in the context of a negated antecedent, whereas *nein* is not blocked by *doch*, albeit dispreferred. For affirming responses to negated antecedents, the predictions of both accounts for *ja* and *nein* correspond to the predictions for *yes* and *no*. That is, F&R predict a general preference for *nein* over *ja*, and Krifka predicts a preference for *nein* over *ja* in default contexts and a reverse preference for contexts with a salient NegDR.

EXPERIMENTS. In a series of acceptability-judgment experiments, participants were presented with short dialogues, as illustrated in (3), consisting of an assertion and a response to it. The response comprised a response particle and a follow-up phrase, which clearly indicated whether the response was affirming or rejecting the assertion. Each dialogue was preceded by a scene-setting passage, which introduced the two interlocutors and served as the dialogue's context, specifying what the two interlocutors were talking about. The dialogue's context was conveyed by an embedded question, either with positive or with negative polarity, intended to induce a salient PosDR or a salient NegDR, respectively (see 'positive' vs. 'negative' context in (3)). The participants' task was to judge the naturalness and suitability of the response in the given dialogue and context on a scale ranging from 1 (very bad) to 7 (very good). Here, we focus on responses to negated assertions. The results of an additional experiment confirm the (uncontroversial) expectations for non-negated assertions.

(3) Sample of the experimental items employed in Expt. 1, translated from German

Hildegard und Ludwig have their large garden redesigned.

They are talking about what the gardener has done already (positive context). / *hasn't done yet* (negative context).

Hildegard: *The gardener hasn't sown the lawn yet.*

Ludwig: *Yes/No, he has sown the lawn already.* / *Yes/No, he hasn't sown the lawn yet.*

We conducted three experiments on negated assertions. In **Expt. 1**, the factors CONTEXT (positive/negative), RESPONSE PARTICLE (*ja/nein*), and RESPONSE CLAUSE POLARITY (positive (rejecting)/negative (affirming)) were manipulated. The results for the positive response clause conditions, i.e. rejecting responses, were consistent with Krifka's predictions, with low ratings for *ja* ($M = 2.11$) and significantly higher ratings for *nein* ($M = 5.34$), suggesting, contra F&R, that only *ja* but not *nein* is blocked by *doch*. The results of **Expt. 2**, which included *doch* as an additional level of the factor RESPONSE PARTICLE demonstrated significantly higher ratings for *doch* ($M = 6.76$) compared with *nein* ($M = 3.84$) and *ja* ($M = 1.81$), and replicated the significant difference between *nein* and *ja*, thereby suggesting that the finding of Expt. 1 did not rest upon the absence of *doch* in the experimental situation. The results for the negative response clause conditions in **Expt. 1**, i.e. affirming responses, were neither consistent with Krifka's predictions, nor with those by F&R: *ja* was rated significantly higher than *nein* both in the positive ($M = 5.91$ vs. 4.63) and in the negative context ($M = 6.26$ vs. 4.96). Thus, contra both accounts, the results indicate a general preference for *ja* over *nein* rather than for *nein* over *ja*, and contra Krifka's account, the preference pattern did not differ in the two context conditions. Note, however, that the lack of a modulation by context cannot be attributed to participants not attending to the critical context information. In Expt. 1 and 2 (as well as in the experiment on non-negated assertions), there was a significant main effect of CONTEXT (with overall lower ratings for responses to negated assertions in the 'positive context' condition than in the 'negative context' condition, and vice versa for responses to non-negated assertions). Still, this does not solve the puzzle of the unpredicted finding of lower ratings for *nein* compared with *ja*.

The purpose of **Expt. 3** was to determine whether this unexpected result could be replicated, and to scrutinize the role of the follow-up phrase. According to Krifka, an affirming *nein*-response to a negated antecedent picks up the PosDR (and asserts its negation). The follow-up phrases in the affirming conditions of Expt. 1 always were negated clauses. That is, the polarity of the follow-up phrase mismatched the polarity of the salient PosDR assumed to be picked up by *nein*, but matched the polarity of the NegDR assumed to be picked up by *ja*. One may conjecture that the mismatch between the follow-up phrase polarity and the polarity of the PosDR could have reduced the ratings for *nein*. To gain insight w.r.t. this issue, the responses in Expt. 3 did not include a follow-up phrase, but were bare particles. Expt. 3 focussed on affirming responses to negated assertions. The scene-setting passage contained information on the 'epistemological state' of the responding person w.r.t. the asserted state of affairs, to make clear whether a bare *ja* or *nein* should be taken as an affirming response (e.g. *The gardener told Hildegard that he would sow the lawn in a couple of days*). A further modification of the material was the replacement of the positive context with a neutral context (e.g., *They are talking about the gardener and the redesigning of their garden*). As in Expt. 1, *ja* received significant higher ratings than *nein* in both context conditions (neutral context: $M = 5.83$ vs. 4.31; negative context: $M = 5.99$ vs. 4.17). Thus, the results of Expt. 3 do not corroborate the assumption that the unexpected results for the affirming conditions of Expt. 1 can be attributed to the presence of the follow-up phrases. Rather, they replicate the finding of lower ratings for *nein* compared with *ja*.

How can this unpredicted finding be accounted for? First, note that not all participants of Expt. 1 and 3 showed the overall pattern of higher ratings for *ja* than for *nein*. For about a third of the participants, the ratings for *ja* were lower or equal to the ratings for *nein*. In addition, the group of participants who showed the unexpected pattern of higher ratings for *ja* than for *nein* is diverse insofar as the difference scores between the ratings for *ja* and for *nein* range from 0.17 to 6. Hence, there are individual differences. Second, a possible source of explanation for the unexpected overall findings of Expt. 1 and 3, which differs from the results obtained for English *yes* and *no*, may lie in the presence of *doch* in the German response particle system. Recall that our results for rejecting responses to negated assertions are consistent with Krifka's assumption that *ja* but not *nein* is blocked by *doch*. Thus, a bare *ja* unequivocally affirms a negated antecedent; it cannot be used for rejecting due to the blocking by *doch*. This may explain our finding that the majority of participants in Expt. 1 and 3 showed a preference for *ja* over *nein* as affirming responses to negated assertions. In contrast to *ja*, *nein* can be used for affirming and, albeit dispreferred, for rejecting a negated antecedent. This may explain the individual differences between participants. The degree by which *nein* is accepted as suitable for affirming negated assertions may negatively covary with the degree by which *nein* is accepted as suitable for rejecting negated assertions; the more *nein* is accepted for rejecting the less it may be accepted for affirming. The result of a post-hoc analysis of the data of Expt. 3 is in line with this conjecture. It revealed a significant negative correlation between each participant's mean rating for *nein* as a rejecting response and the mean rating for *nein* as an affirming response, i.e. the higher the rating was for rejecting *nein* the lower the rating was for affirming *nein*.

CONCLUSION. For rejecting responses to negated antecedents, our findings are consistent with Krifka's predictions, i.e. *ja* is blocked and *nein* is not blocked, yet dispreferred to *doch*. For affirming responses, our findings are unexpected but rather clear-cut, suggesting that *ja* is preferred over *nein*, and also pointing to individual differences. A potential explanation deserving further study, is that the acceptability pattern for affirming responses is determined by the blocking of *ja* as a rejecting response and affected by the extent to which *nein* is accepted as a rejecting response.

References. Brasoveanu, A., Farkas, D., & Roelofsen, F. (2013). N-words and sentential negation: Evidence from polarity particles and VP ellipsis. *Semantics and Pragmatics*, 6, 1-33. | Kramer, R. & Rawlins, K. (2012). An ellipsis approach to answer particles in positive and negative contexts. Presentation at a Workshop on the Syntax of Answers to Polar Questions at Newcastle University. | Krifka, M. (2013). Response particles as propositional anaphors. *Proceedings of SALT 23*, 1-18. | Roelofsen, F. & Farkas, D. (to appear). Polarity particle responses as a window onto the interpretation of questions and assertions. Forthcoming in *Language*.