Questions, Answers and the Structuring of Information: II: Polarity Questions and Their Answers

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II Responses to Assertions and Polarity Questions

Day 2: Polarity questions and answers to polarity questions, e.g. with response particles like *yes / no*. Ways of modeling the answerhood relation, e.g. by elliptical clauses, by conversational moves like rejection, by propositional discourse referents. See in particular Roelofsen & Farkas 2015. Also, theories of high negation in questions.

Slides can be downloaded from:

- *http://www.zas.gwz-berlin.de/180.html*
- or *http://www.zas.gwz-berlin.de/mitarbeiter_krifka.html*, go to “Vorträge” or “Talks”

1 Introduction

1.1 A biblical advice about clear communication

(1) *But let your communication be, Yea, yea; Nay, nay;*
for whatsoever is more than these cometh of evil. (Matthew 5:37)

But are *yes* and *no* really that clear?

(2) S_1: *You stole the cookie.* S_2: *Yes.*
Did you steal the cookie? *No.*

(3) S_1: *You did not steal the cookie.* S_2: *Yes.* S_2: *No, I didn't. / No, I did.*
Did you not steal the cookie? *No.* *Yes, I didn't. / Yes, I did.*

yes, no: "polarity particles", "response particles"

Experimental result of Kramer & Rawlins 2012:[1]

- Bare particles reduced in acceptability in (3), *no* better than *yes*.
- Both *yes* and *no* both preferably interpreted as 'S_2 did not steal the cookie'

[1] Cf. Kramer, Ruth, and Kyle Rawlins. 2012. An ellipsis approach to answer particles in positive and negative contexts. Paper presented at theWorkshop on the Syntax of Answers to Polar Questions, Newcastle University.

1.2 Approaches to polarity items

Classics:

- Emily Pope. *Questions and Answers in English.* Mouton, The Hague, 1976.
- Jones, Bob Morris. 1999. *The Welsh answering system.* Berlin: Mouton de Gruyter.

Some recent contributions:

- Biezma, María & Kyle Rawlins. 2012. Responding to alternative and polar questions. *Linguistics and Philosophy* 35: 361-406.
- Brasoveanu, Adrian, Donka Farkas & Floris Roelofsen. 2013. N-words and sentential negation: Evidence from polarity particles and VP ellipsis. *Semantics & Pragmatics* 6: 1-33.
- Goodhue, Dan and Michael Wagner. 2015. It's not just what you say, it's how you say it: Intonation, yes and no. Deniz Ozyildiz & Thuy Bui (eds.), *NELS* 45
- Holmberg, Anders. 2012. On the syntax of yes and no in English. *Newcastle Working Papers in Linguistics* 18: 52-72.
- Holmberg, Anders. 2016. *The syntax of yes and no.* Oxford: Oxford University Press.
- Kramer, Ruth & Kyle Rawlins. 2009. Polarity particles: an ellipsis account. *NELS* 39.
- Krifka, Manfred. 2013. Response particles as propositional anaphors. *SALT* 23. 1-18.
- Roelofsen, Floris & Donka Farkas. 2015. Polarity particle responses as a window onto the interpretation of questions and assertions. *Language* 91: 359-414.

2 Syntactic approach: Kramer & Rawlins 2009

Proposal: *Yes* and *no* are adverbials corresponding to the heads of ellipsis clauses which correspond to contextually salient propositions.

(4) S_1: *Ede stole the cookie.*
S_2: [$_{\Sigma P}$ *Yes* [$_{\Sigma P}$ Σ [$_{TP}$ ~~*he did*~~ [t_{he} ~~*steal the cookie*~~]]]]

Ellipsis phrase ΣP with head Σ, adverbial *yes*.

(5) S_1: *Ede did not steal the cookie.*
S_2: [$_{\Sigma P}$ *No*$_{[u\ NEG]}$ [$_{\Sigma P}$ Σ$_{[u\ NEG]}$ [$_{TP}$ ~~*he didn't*~~ $_{[i\ NEG]}$ [t_{he} ~~*steal the cookies*~~]]]]

No double negation interpretation: *n't* has an interpretable NEG feature that agrees with an uninterpretable NEG feature provided by *no* (Zeijlstra 2004).

(6) S_1: *Ede did not steal the cookie.*
S_2: [$_{\Sigma P}$ *Yes / No* $_{[u\ NEG}$ [$_{\Sigma P}$ Σ$_{[u\ NEG]}$ [$_{TP}$ *he didn't* $_{[i\ NEG]}$ [t_{he} ~~*steal the cookies*~~]]]]

Yes is featureless, compatible with [u NEG] head of ellipsis clause.

Problems:

- Why is (7) not possible, as *yes* is featureless, compatible with negation?

(7) S_1: *Ede stole the cookie.*
S_2: *#Yes, he didn't steal the cookie.*

- Distribution of elliptical clauses and response particles does not always match:

(8) *Did Ede steal the cookies?*
a. *If he did, he must pay them back.*
b. **If yes, he did, he must pay them back.*
c. *If* $^{??}$*yes / so, he must pay them back.*

3 Roelofsen & Farkas 2015

3.1 Response particles as anaphora

Response particles pick out contextually salient propositions
(couched in communication theory of Farkas & Bruce 2010, neglected here).

(9) S_1: *Ede stole the cookie.* Contextually salient proposition:
φ = 'Ede stole the cookie'

S_2: *Yes.* Confirms φ.
No. Rejects φ.

With polarity questions, two propositions are introduced, one the negation of the other
(cf. propositional set theory of questions, Hamblin 1973;
F&R use inquisitive semantics, which is equivalent for our purposes).

(10) S_1: *Did Ede steal the cookie?* Interpretation: {φ, ¬φ}

This is not sufficient to explain the usage of *yes* and *no*.

F&R assume in addition that the proposition that is "explicitly mentioned"
is highlighted, and hence made salient.

(11) S_1: *Did Ede steal the cookie?* {**φ**, ¬φ}; contextually salient: φ, due to highlighting.
S_2: *Yes.* a. Confirms highlighted proposition, asserts φ.
No. b. Reverses highlighted proposition, asserts ¬φ.

3.2 *Yes* and *no* in negated questions

For *yes* and *no* in negated questions:

- F&R assume that antecedent propositions are marked as non-negated or negated
- refined conditions for *yes* and *no*:

(12) S_1: *Did Ede not steal the cookie?* {φ, **¬φ**},
where ¬φ identifiable as negated proposition.

S_2: *Yes.* [AGREE, +] a. **Confirms** highlighted proposition, here ¬φ.
a′. Reverses highlighted neg. proposition, i.e. **asserts φ**.

No. [REVERSE, –] b. **Reverses** highlighted proposition, i.e. asserts φ.
b′. Confirms highlighted neg. proposition, i.e. **asserts ¬φ**.

- Highlighting of propositions is an extraneous semantic feature
in propositional set theory / Inquisitive Semantics,
- Marking of proposition as negated an extraneous feature in truth-cond. semantics;
requires representational theory (e.g. Situation Semantics: Ginzburg & Sag 2000)
- Therefore F&R propose using propositional discourse referents (see below),
i.e. representational entities that can express features like negation (cf. gender)
- Ambiguity or replies to neg. antecedents resides in an ambiguity of *yes* and *no*
- Combinations of features [+]/[–], [AGREE]/[REVERSE] express particles in several lg.

3.3 Polarity features and their uses

R&F assume polarity features are hosted in a polarity phrase:

- [$_{PolP}$ Pol Prejacent], where prejacent: clause, IP?
- A PolP is anaphoric to an antecedent clause.

R&F assume two kinds of "polarity features":

- Absolute polarity features: [+], [–],
  where [+]/[–] presupposes that prejacent has highlighted positive / negative polarity
- Relative polarity feature: [AGREE], [REVERSE],
  where [AGREE] / [REVERSE] presupposes antecedent has
  the same meaning and same polarity / complement meaning and opposite polarity

Realization rules for English:

- [AGREE] and [+] can be realized by *yes*
- [REVERSE] and [–] can be realized by *no*

Consequence:

- [AGREE, –] and [REVERSE, +] can be realized by both *yes* and *no* – ambiguity!

Markedness contrast, where marked features have a higher need for expression:

- [+] is less marked than [–]
- [AGREE] is less marked than [REVERSE]

3.4 Explanation of English data

Non-negated antecedents:

(1) S_1: *Peter called. / Did Peter call?*
S_2: *Yes, he did. / *No, he did.* [AGREE, +] cannot be realized by *no*
S_2: **Yes, he didn't. / No, he didn't.* [REVERSE, –] cannot be realized by *yes*

(2) S_1: *Peter didn't call. / Did Peter not call?*
S_2: *Yes, he DID. / No, he DID.* *yes* realizes [+], *no* realizes [REVERSE]
S_2: *Yes, he didn't. / No, he didn't.* *yes* realizes [AGREE], *no* realizes [–]

Use of bare particles *yes / no* with negated antecedent:

- Ambiguous, hence less felicitous
- *yes* and *no* more often understood as confirming antecedent ('he didn't'),
  as marked [REVERSE] feature has a higher need for expression.
- *no* preferred over *yes*, as marked [–] feature has higher need for expression.

Additional phenomena:

(3) S_1: *Susan failed the exam.* / *Did Susan fail the exam?* true prejacent
S_2: *Yes, she did not pass.* / **No, she did not pass.* *failed the exam* is elided

(4) S_1: *Does Igor speak English*↑ *or* French↓*?* *two highlighte*d
S_2: **Yes (he speakes English) / *No (he speaks French).* antecedent propositions

4 Response Particles as Anaphora: Krifka 2013

4.1 Propositional discourse referents

Discourse referents: Entities, Events, Propositions, and Acts

- Discourse referents for entities (cf. Karttunen 1969, Kamp 1981, Heim 1982).

(13) [$_{DP}$ *A man*] *came in. He stole* [$_{DP}$ *a cookie*]. – introduced by DPs
↳ d_{entity} ↑d ↳ d'_{entity}

- Discourse referents for events, introduced by tenseless vPs: (Hinrichs 1981, Partee 1984).

(14) [$_{TP}$ *He steal*-PAST [$_{vP}$ t_{he} t_{steal} *a cookie*]]. *Bill saw it.* – introduced by tenseless vPs
↳d_{event} ↑d

- DRs for propositions (propDRs), introduced by tensed TPs, e.g. Webber (1978), Asher (1986), Cornish (1992), Frank (1996).

(15) [$_{TP}$ *He stole a cookie*]. *Bill knows it.* – introduced by tensed TPs
↳ d_{prop} ↑d

- Speech act discourse referents (actDRs), introduced by ActPs, e.g. Webber (1978)

(16) S_1: [$_{ActP}$ ASSERT *He stole a cookie*.] S_2: *That's a lie!* – introd. by illocutionary
↳d_{act} ↑d phrase, here: ActP

Complete analysis, except for entity DRs:

(17) *He stole a cookie*.

[$_{ActP}$ ASSERT [$_{TP}$ he *steal*-PAST [$_{vP}$ t_{he} t_{steal} *a cookie*]]]
↳ $d_{speech\ act}$ ↳ d'_{prop} ↳ d''_{event}

(18) *Did he steal a cookie?*

[$_{ActP}$ *did*-QUEST [$_{TP}$ *he* t_{did}-PAST [$_{vP}$ t_{he} t_{steal} *a cookie*]]]
↳ $d_{speech\ act}$ ↳ d'_{prop} ↳ d''_{event}

4.2 Propositional discourse referents and negation

Negation also creates a propositional syntactic category (NegP);
introduction of **two** propDRs.

(19) [$_{NegP}$ *he did-n't* [$_{TP}$ t_{he} t_{did} *steal the cookie*]]
↪d'_{prop} ↪d_{prop}

Evidence for introduction of two propositional discourse referents with negation:

(20) *Two plus two isn't five.*
[$_{NegP}$ 2+2 *is-n't* [$_{TP}$ t_{2+2} t_{is} 5]]
↪$d'_{\neg[2+2=5]}$ ↪$d_{[2+2=5]}$

a. *Everyone knows that.*
↑$d'_{\neg[2+2=5]}$

b. *That would be a contradiction.*
↑$d_{[2+2=5]}$

The negated propDR is introduced with syntactic negation,
not with negative predicates as in (21):

(21) *Two plus two is unequal to five.*
[$_{TP}$ 2+2 *is unequal* 5]
↪$d_{[2+2\neq5]}$

a. *Everyone knows that.*

b. *#That would be a contradiction.*

4.3 The information content of propositional DRs

Previous assumptions for propDRs:

- anchored to propositions (e.g. Heim 1992)
- anchored to world-sequence pairs (Geurts 1996, Frank 1996)
- anchored to DRSes: Asher (1986, 1993)

Assumptions here:

- PropDRs refer to a proposition and a variable assignment (irrelevant here)
- They are marked as negated when introduced by a NegP phrase.
  (DRs are representational entities, cf. gender marking in gender languages).

(22) [$_{NegP}$ *he did-n't* [$_{TP}$ t_{Ede} t_{did} *steal a cookie*]]
↪ d'_{prop}[neg] ↪d_{prop}

4.4 Propositional anaphora

Different syntactic categories for propositional anaphora:

- *it* and *that*: DP
- *so, not*: TP (pace Cornish 1992, who considers them adverbials)
- *yes* and *no*: ActP
  (pace Ginzburg & Sag 2000, who call them “propositional lexemes” but consider them adverbials)

(23) *Did he steal a cookie? If *it / so /* $^{??}$*yes, he must be punished.*
[*if* [$_{TP}$ α]], hence α ≠ [$_{DP}$ *it*], α ≠ [$_{ActP}$ *yes*]

(24) *Did he steal a cookie? Bill believes it / so /* $^{??}$*yes.*
believe [$_{DP}$ α], cf. *I believe this*, or *believe* [$_{CP}$ α],
cf. *I believe (that) he did it*; hence α ≠ [$_{ActP}$ *yes*]

Proposal for *yes* and *no*:

(25) a. *yes* picks up salient propDR d and asserts it: ASSERT(d)
b. *no* picks up salient propDR d and asserts its negation: ASSERT(¬d)

4.5 Response particles with elliptical clauses

Response particles with (elliptical) clauses as appositive structures:

(26) S_1: [$_{ActP}$ *did*-QUEST [$_{TP}$ *he* t_{did}-PAST [$_{vP}$ t_{he} t_{steal} *a cookie*]]]
↪ d_{prop} ↪ d'_{event}

S_2: a. [$_{ActP}$ *yes*], = ASSERT(d)
↑d_{prop}

b. [$_{ActP}$ ASSERT [$_{TP}$ *he did* [[$_{vP}$ t_{he} ~~*steal the cookie*~~] / [$_{DP}$ *it*]]]]
↑d'_{event} ↑d'_{event}

c. [$_{ActP}$ *yes*], [$_{ActP}$ ASSERT [$_{TP}$ *he did* [[$_{vP}$ t_{he} ~~*steal the cookies*~~] / [$_{DP}$ *it*]]]]
↑d_{prop} ↑d'_{event} ↑d'_{event}

4.6 Response particles with adverbials

Adverbial answers, e.g. *maybe, probably*: Deletion of TP due to givenness.

(27) S_2: [$_{ActP}$ ASSERT [$_{TP}$ *maybe* [$_{TP}$ ~~*he stole the cookie*~~]]]
↑d_{prop}

(28) S_2: #[$_{ActP}$ *yes*], [$_{ActP}$ ASSERT [$_{TP}$ *maybe* [$_{TP}$ *he stole the cookie*]]]
inappropriate, as first part asserts d, second asserts ◇d

(29) *Maybe yes, maybe no*:
Meta speech act,
signals that there are reasons to answer with *yes* and reasons to answer with *no*
(cf. for meta speech acts Cohen & Krifka 2011).

4.7 Types of response particles

Difference between response particles in English / German:

- English: *yes*, *no* are anaphoric ActP
- German: *ja, nein* (und *doch*) are anaphoric TPs

(30) a. *Did he steal a cookie? If *yes / so, he must be punished.*
b. *Hat er einen Keks gestohlen? Wenn ja, muss er bestraft werden*.

(31) a. *Did he steal a cookie= I believe so / not / ?yes / ?no.*
b. *Hat er einen Keks gestohlen? Ich glaube(,) ja / nein.*

Response particles in German are TPs that can be asserted:

(32) S_1: *Hat er einen Keks gestohlen?*
S_2: [$_{ActP}$ ASSERT [$_{TP}$ *ja*]]

This contrasts with English

(33) S_1: *Does Ede steal cookies?*
S_2: *yes, sometimes. / *sometimes yes.*

(34) S_1: *Stiehlt Ede Kekse?*
S_2: *Ja, manchmal.* [$_{ActP}$ ASSERT [$_{TP}$ *ja*]] [$_{ActP}$ ASSERT [$_{TP}$ *manchmal* [$_{TP}$ ~~*st. er K.*~~]]
Manchmal ja. [$_{ActP}$ ASSERT [$_{TP}$ *manchmal* [$_{TP}$ *ja*]]]

4.8 Optimal choice of response particles

Recall interpretation of *yes* and *no*, cf. (25):

(35) a. [$_{ActP}$ *yes*] requires salient discourse referent d_{prop}, interpreted as ASSERT(d)
b. [$_{ActP}$ *no*] requires salient discourse referent d_{prop}, interpreted as ASSERT(¬d)

Recall introduction of discourse referents in negated clauses:

(36) [$_{ActP}$ ASSERT [$_{NegP}$ *he did-n't* [$_{TP}$ t_{he} t_{did} *steal a cookie*]]]
↪d'_{prop} ↪d_{prop}

Four possibilities of interpretation in this context.

(37) a.	*Yes.*	ASSERT(d)	'Yes, he did!'	Requires rejecting accent, with clause.
b.	*Yes.*	ASSERT(d′)	'Yes, he didn't.'	Natural answer, but with clause.
c.	*No.*	ASSERT(¬d)	'No (he didn't).'	Natural answ, ellipt. clause not required
d.	*No.*	ASSERT(¬d′)	'No, he did!'	Requires rejecting accent, with clause.

These judgements arise due to certain preferences:

(38) a. *NEGDR: Penalizes picking up a negatively marked discourse referent;
Reason: When a clause contains a negation, the non-negated proposition is typically salient in the preceding context.

b. *DISAGR: Penalizes disagreement with other speaker;
reason: Agreement as the default case.

(39) Calculation of optimal forms in an OT tableau, antecedent: assertion (36);
we assume that *DISAGR is ranked above *NEGDR

[$_{ActP}$ ASSERT [$_{NegP}$ *he did-n't* [$_{TP}$ t_{he} t_{did} *steal a cookie*]]]
↪d'_{prop} ↪d_{prop}

	expression	reference	resulting meaning	*DISAGR	*NEGDR	Favorite
a	*yes*	d	'He did.'	*		((☜))
b	*yes*	d′	'He didn't.'		*	(☜)
c	*no*	d	'He didn't.'			☜
d	*no*	d′	'He did.'	*	*	

Appositive clauses (*he did / he didn't*) required for non-optimal solutions, for clarification.

Notice:

- This computation depends on constraint *NegDR – the negated DR is less salient.
- In cases in which the negated propDR is salient, things might change, according to my and a few other people's judgement:

(40) S_2: *Which of the mountains on this list did Reinhold Messner NOT climb?*
S_1: *Well, let's see... He did not climb Mount Cotopaxi in Ecuador.*
S_2: a. *Yes.* (= He did not climb it.)
b. *No.* (= He did climb it.)

4.9 Response particles to questions with negation

Introduction of discourse referents in negated clauses,
here: Question with propositional negation.

(41) $[_{ActP}$ *did* QUEST $[_{NegP}$ *he not* $[_{TP}$ t_{he} *steal the cookie*]]]?
$\hookrightarrow d'_{prop}$ $\hookrightarrow d_{prop}$

Four possibilities of interpretation in this context; judgements (a)/(b) Holmberg (2012).

(42) a.	*Yes.*	ASSERT(d)	'Yes, he did.'	Natural answer, preferably with tag.
b.	*Yes.*	ASSERT(d′)	'Yes, he didn't.'	Less natural, possible with tag.
c.	*No.*	ASSERT(¬d)	'No, he didn't.'	Natural answer, tag not necessary.
d.	*No.*	ASSERT(¬d′)	'No, he did.'	Quite bad, even with tag.

For non-biased questions, *DISAGR is not operative.

But questions based on a negated proposition are biased;
otherwise the simpler variant with a non-negated proposition would have been used (*Did he steal the cookie?*).

Yet it is less biased than an assertion. So we assume that *DISAGR is ranked lower.

Calculation of optimal forms in an OT tableau, antecedent: question (41).

	expression	reference	resulting meaning	*NEGDR	*DISAGR	Favorite
a	*yes*	d	'He did.'		*	(☜)
b	*yes*	d′	'He didn't.'	*		((☜))
c	*no*	d	'He didn't.'			☜
d	*no*	d′	'He did.'	*	*	

Contrast with syntactically high negation (Ladd 1981), cf. Krifka (2015):

(43) S_1: *Didn't Ede steal some cookie?*
[$_{ActP}$ *did*-REQUEST [$_{NegP}$ *not* [$_{ActP}$ *Ede* ASSERT [$_{TP}$ t_{Ede} *steal some cookie*]]]]
↪d_{prop}

Only **one** propDR is introduced; negation interpreted as speech-act operator; S_1 requests from S_2 to denegate the assertion that Ede stole some cookie.

Predicted answer pattern:

(44) S_2: a. *Yes (he did).* b. *No (he didn't).*
c. **No, he did.* d. **Yes, he didn't.*

4.10 The German particle *doch*

In German there is in addition to *yes* and *no* a third particle, *doch* (cf. also French *si*), that requires a syntactically negated discourse referent.

(45) S_1: *Er hat einen Keks gestohlen.* 'He stole a cookie.'
S_2: *Ja.* 'He did steal a cookie.'
Nein. 'He did not steal a cookie.'
**Doch.*

(46) S_1: *Er hat keinen Keks gestohlen.* 'He did not steal a cookie.'
S_2: *Ja.* 'He did not steal the cookie.'
Nein. 'He did not steal the cookie.'
Doch. 'He did steal the cookie.'

(47) S_1: *Es fehlt ein Keks.* 'A cookie is missing.'
S_2: *Ja.* 'A cookie is missing.'
Nein. 'No cookie is missing.'
**Doch.*

Roelofson & Farkas 2015: *doch* realizes feature combination [REVERSE, +]

Like *ja / nein*, the particle *doch* is of the syntactic category TP:

(48) *Er hat wahrscheinlich keinen Keks gestohlen. Falls doch, muss er bestraft werden.*
'He probably did not steal a cookie. But if he did, he must be punished.'

Assumption for *doch*:[2]

- Presupposes two propDRs, one the negation of the other: d, d′ = ¬d
- Picks up the non-negated discourse referent, d.

(49) *Er hat möglicherweise keinen Keks gestohlen. Wenn doch, müssen wir ihn finden.*
'Ede may not have stolen a cookie. If DOCH, we have to find it.'
Notice that *doch* makes accessible the DR introduced by *a cookie*,
hence picks up non-negated propDR anchored to *Ede hat einen Keks gestohlen*

The particle *doch* comes with a specific presupposition, which blocks the uses of other particles in case the presupposition is satisfied.

[2] The assumption that *doch* presupposes two salient propositional discourse referents, d, ¬d is probably too strict, as ¬d can be accommodated in certain cases.
S_1: *Hat Ede denn (etwa) einen Keks gestohlen?* S_2: *Ja. / Doch.* (= he stole a cookie) *Nein.* (= he didn't steal a cookie)
A's question introduces only one discourse referent, d = 'Ede stole a cookie', yet *doch* is possible. Perhaps the requirement is that a propositional discourse referent d is salient, but the context entails that ¬d might hold; *doch* then picks up the discourse referent d. This allows, but does not require, that a discourse referent ¬d was introduced.

One implementation of blocking, following Beaver (2004):

- Meta-constraint BLOCK that is marked by the presence of an expression for which the indicated interpretation is strongly preferred.

(50) Calculation of optimal forms in an OT tableau; negated antecedent clause; DISAGR is irrelevant if ordered under BLOCK.

	expression	reference	resulting meaning	*PRES	BLOCK	*NEGDR	Favorite
a	*ja*	d	'He did.'		*		
b	*ja*	d′	'He didn't.'			*	(☜)
c	*nein*	d	'He didn't.'				☜
d	*nein*	d′	'He did.'			*	(☜)
e	*doch*	d	'He did.'				☜; blocking of a
f	*doch*	d′	'He didn't.'	*		*	

S_1: *Er hat den Keks nicht gestohlen.*

S_2: a. ??*Ja, er hat ihn gestohlen.* b. *Ja, er hat ihn nicht gestohlen.*
c. *Nein (er hat ihn nicht gestohlen).* d. *Nein, er hat ihn gestohlen.*
e. *Doch (er hat ihn gestohlen).* f. **Doch (er hat ihn nicht gestohlen).*

The presence of a third particle, *doch*, creates a more expressive system of response particles, obviating the need to add full or elliptical clauses as in English.

4.11 Narrow-scope negation

Holmberg (2012) observes preference for the agreeing answer in cases like (51):

(51) S_1: *John sometimes / purposely did not show up for work.*
S_2: *Yes, he didn't.* / ? *No, he didn't.*

Explanation: Negation does not form a NegP under the scope of a quantifier, hence does not introduce a negated propDR.

A case of ambiguous negation in German, disambiguated by *doch.*

(52) S_1: *Jeder Zahnarzt ist nicht reich.*
i. 'For every dentist it holds: he or she is not rich.'
ii. 'It is not the case that every dentist is rich.'
S_2: *Doch.* 'Every dentist IS rich.' (= ¬(ii.)).

Explanation: Only reading (ii) inroduces a negated propDR, hence *doch* is applicable only for this case.

4.12 Focusing on negation

Holmberg (2012) observes that stressing the negation in an antecedent clause influences the interpretation of yes/no answers;

(53) S_1: *Did Ede NOT steal a cookie?*
S_2: *Yes*. (likely interpretation: He did not steal it).

Explanation:

- Stress indicates focus, and focus indicates alternatives (cf. Rooth 1992).
- In the case at hand, the meaning is the proposition ¬'Ede stole a cookie', and the set of alternatives is {'Ede stole a cookie', ¬'Ede stole a cookie'}.
- As for the introduced propDRs, the meaning introduces two propDRs, d for 'Ede stole a cookie', and d′ for ¬'Ede stole a cookie'; the only alternative introduces just one, d for 'Ede stole a cookie'
- The highlighting or contrast of the focused expression with the alternatives also affects their anaphoric potential; as the focused expression and the only alternative differ just in d′, this makes d′ more salient than d.
- As d′ is more salient, and the *yes* answer is semantically less complex, *yes* can be used to identify d′.

5 Other kinds of response particles

5.1 *hai* and *iie*

Agree / disagree systems (cf. Sadock & Zwicky 1985), e.g. *hai / iie* in Japanese:

(54) a. S_1: *John wa hashitte imasu ka?* 'Is John running?'
a. S_2: *Hai* (, *hashitte imasu*). 'Yes (, he is running)'
b. S_2: *Iie* (, *hashitte imasen*) 'No (, he is not running)'

b. S_1: *John wa hashitte imasen ka?* 'Is John not running?'
a. S_2: *Hai* (, *hashitte imasen*). 'Yes (, he is not running)'
b. S_2: *Iie* (, *hashitte imasu*). 'No (, he is running)'

Theoretical options:

- *hai* and *iie* express agreement / disagreement; questions are always biased.
- Negation in Japanese does not form a NegP, hence does not introduce a negated propDR. cf. Yabushita (1998) for arguments for that option.

5.2 *right* and *wrong*

right and *wrong* act as agreement/disagreement markers;
un-ambiguous meaning with assertions:

(55) S_1: *He stole a cookie.* S_2: *Right.* (= he stole one.)
Wrong. (= he didn't steal one.)

(56) S_1: *He didn't steal a cookie.* S_2: *Right.* (= he didn't steal one.)
Wrong. (= he stole one.)

They can also be used with questions,
which presupposes that the question can be understood as biased.

(57) S_1: *Did he steal a cookie?* S_2: *Right. /* (?)*Wrong.*

(58) S_1: *Didn't he steal a cookie?* S_2: *Right. / Wrong.*

Proposal: *right* and *wrong* do not pick up propositional discourse referents,
but speech-act referents:

(59) S_1: $[_{ActP}$ ASSERT $[_{NegP}$ *He did-n't* $[t_{he}\ t_{steal}$ *steal a cookie*$]]]$
$\hookrightarrow d_{speechact}$
S_2: a. $[_{ActP}$ ASSERT $[$~~*this is*~~ *right / wrong*$]]$
$\uparrow d$
b. $[_{ActP}$ *Right.*$]$, making the same speech act as d, performed by B.

The speech act of an assertion

- is right (= justified), if the proposition that is asserted is true, and relevant for the current exchange.
- and it is wrong if this is not the case.

With biased questions,

- the speech act of uttering a question introduces a bias towards a particular answer as an implicature (cf. Krifka 2015 for negated questions).
- As such, a speech act introducing a bias can also be right or wrong.

Right and *wrong* can be used for non-assertive questions as well,
and then express the speaker's opinion whether the question is justified at the current exchange (i.e. if it is an interesting question to ask).

(60) S_1: *Did he steal a cookie, or not?*
S_2: *Right, that's a good question.*

5.3 *uh-huh* and *uh-uh*

(61) S_1: *He stole the cookie.*
S_2: *uh-huh.*

Notice: *uh-huh* is weaker than *yes*; does not commit S_2 to the proposition; works as a backchaneling signal (Ward 2006).

But it can also be used like *yes*:

(62) S_1: *Did he steal the cookie?*
S_2: *uh-huh.*

And *uh-uh* always is interpreted like *no*:

(63) S_1: *He stole the cookie.* / *Did he steal the cookie?*
S_2: *Uh-uh.*

Proposal:

- The speech act of assertion is a combination of two separate acts (Krifka 2015):

(64) S_1, to S_2: *He stole the cookie.*
a. S_1 commits himself/herself to the truth of the proposition 'he stole the cookie'
b. S_1 wants that the proposition becomes common ground between S_1 and S_2.

(65) $[_{ActP}$ COMMIT$_{S_1}$ + COMGROUND$_{S_1,S_2}$ $[_{TP}$ *he steal*-PAST $[_{vP}$ t_{he} t_{steal} *a cookie*]]]
$\hookrightarrow d_{act}$ $\hookrightarrow d'_{prop}$ $\hookrightarrow d''_{prop}$ $\hookrightarrow d'''_{prop}$
where d'''_{prop}: 'he stole a cookie'
d'_{prop}: 'S_1 is committed to the proposition d''''
d''_{prop}: 'the proposition d''' is part of the common ground of S_1 and S_2'
d_{act}: S_1 acts to make d' and d'' true, relevant for answer *right / wrong*

- The discourse referent d'' typically elicits some sort of reaction from the addressee, as the common ground is common between the interlocutors.
- Reactions *uh-huh* and *yes* assert a propositional discourse referent, where *uh-huh* is weaker, and typically will target d'': ASSERT(d'') and *yes* is stronger, and will target the more commitmental d''': ASSERT(d''')
- Reactions *uh-uh* and *no* assert the negation of a propositional discourse referent, but here the rejection to accept d'' (that d''' is part of the common ground) implies that S_2 has reasons to assume that d''' is false, hence ASSERT($\neg d''$) and ASSERT($\neg d'''$) are pragmatically close.

- With a neutral question,
  Did he steal a cookie, speaker expresses that either d‴ or ¬d‴
  becomes part of the common ground,
  hence this cannot be targeted by *uh-huh* or *uh-uh*;
  as a result, *uh-huh* and *uh-uh* can only target d‴ directly, meaning *yes* and *no*.

5.4 Reaction to commands

(66) S_1: *Steal a cookie!*
S_2: *Yes. / No. / Uh-huh. / Uh-uh.*

Proposal:

- S_1 imposes a commitment on S_2 for the action to steal a cookie (Barker 2012).

(67) $[_{ActP}$ COMMIT_{S_2} $[_{vP}$ *steal a cookie*$]]$
$\hookrightarrow d_{act}$ $\hookrightarrow d'_{prop}$ $\hookrightarrow d''_{event.type}$
where d'_{prop}: 'S_2 is committed to the action of stealing a cookie'.

With answers *yes / no* (also *uh-huh / uh-uh*), S_2 asserts this proposition or its negation.

5.5 *okay*

(68) a. S_1: *He stole a cookie.* S_2: *Okay.*
b. S_1: *He did not steal a cookie.* S_2: *Okay.*
c. S_1: *Did he steal a cookie?* S_2: **Okay. / Okay... he did.*
d. S_1: *Steal a cookie!* S_2: *Okay.*

Proposal: *okay* expresses compliance to a speech act.

S_1: $[_{ActP}$ COMMIT_{S_1} + $\text{COMGROUND}_{S_1,S_2}$ $[_{TP}$ *he stole a cookie*$]]$. S_2: *Okay.*
$\hookrightarrow d_{act}$ $\uparrow \text{COMPLY}_B(d)$
where $d_{act:}$ S_1 acts to commit to 'he stole the cookie' and to make it part of the CG.

6 Experimental data on *ja / nein*

Joint work with Sophie Repp, Berry Claus, Marlijn Meier,
DFG project on response particles, Priority program XPrag.de[3]

4 acceptability judgement experiments (here: only for assertion antecedents)

- particle + full-clause responses to positive assertions
- preference patterns for *ja/nein* in affirming / rejecting particle + full clause responses to negative assertions
- particle + full clause responses to rejecting assertions, including *doch*
- bare particle responses to affirming responses to negative assertions

[3] Meijer, Anna Marlijn; Claus, Berry; Repp, Sophie; Krifka, Manfred. 2015. Particle responses to negated assertions: Preference patterns for German ja und nein. In Brochhagen, Thomas; Roelofsen, Floris; Theiler, Nadine, *Proceedings of the 20th Amsterdam Colloquium*, 286-295. Amsterdam: ILLC / Dept. of Philosphy, University of Amsterdam.

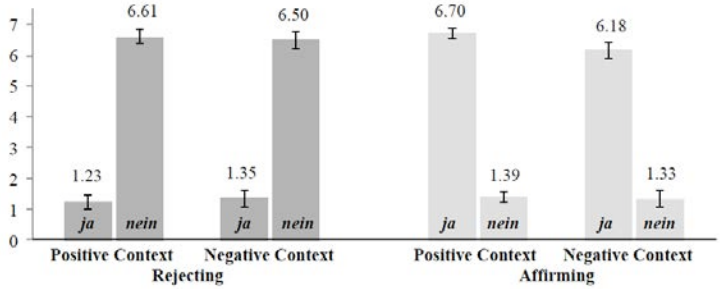
6.1 Experiment 1: positive antecedent

48 experimental items, 16 fillers, 48 subjects, 2x2x2 within subjects, rating 1-7

Context sentence: *Ludwig and Hildegard have their large garden redesigned.*

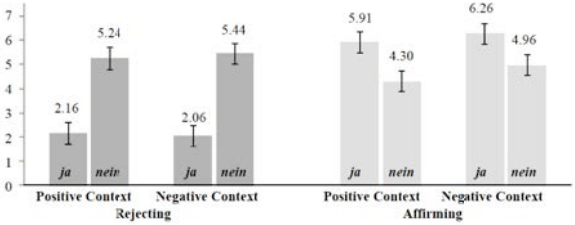
- Positive context: *They are talking about what the gardener has done already.*
- Negative context: *They are talking about what the gardener hasn't done yet.*

Ludwig: *The gardener has sown the lawn already.*
Hildegard: Affirming: *JA, he has sown the lawn already.*
NEIN, he has sown the lawn already.
Rejecting: *JA, he hasn't sown the lawn already.*
NEIN, he hasn't sown the lawn already.



6.2 Experiment 2: negative antecedent

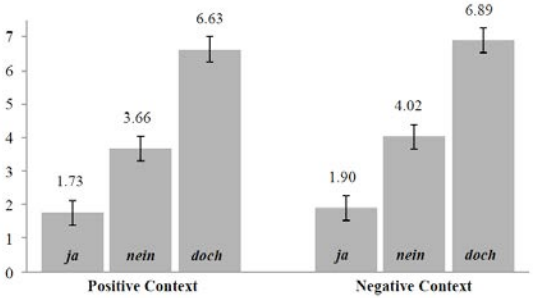
Ludwig: *The gardener hasn't sown the lawn yet.*



- No influence of context, against prediction by saliency account
- Preference for *nein* for rejecting responses (no *doch* provided) not predicted by feature model, predicted as default by saliency account (*NO, he has sown the lawn;* recall that *doch* was not offered as option)
- Slight preference for *ja* for affirming responses against default prediction of saliency and feature model, common knowledge (e.g., Wikipedia) (*JA > NEIN, he hasn't sown the lawn yet*).

6.3 Experiment 3: negative antecedent, with *doch*

Results for rejecting answers:



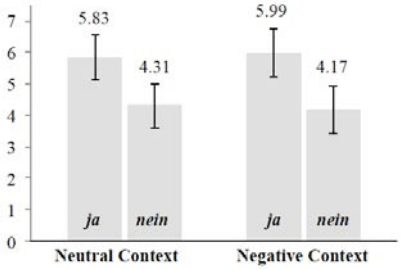
- no influence of context, as before, contra saliency account
- *doch* clearly the best option, as expected
- *nein* better than *ja*, different from expectations of both accounts, as before

6.4 Bare particle responses to negated antecedents

- Setting: *Ludwig and Hildegard have their large garden redesigned. This morning, Hildegard talked to the gardener, who told her that because of the weather he would sow the lawn only in a couple of days.*
- Context: Neutral: *During lunch, Hildegard and Ludwig are talking about the gardener and the redesigning of their garden.*
  Negative: *During lunch, Hildegard and Ludwig are talking about what the gardener hasn't done yet.*
- Dialogue: Ludwig: *The gardener hasn't sown the lawn yet.*
  Hildegard: *Ja. / Nein.*

Results, again:

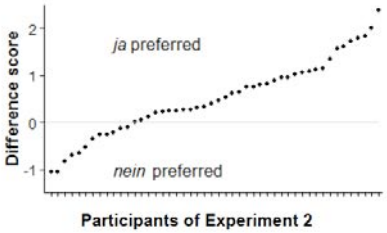
- No influence of context
- Slight preference for *ja* for confirmation

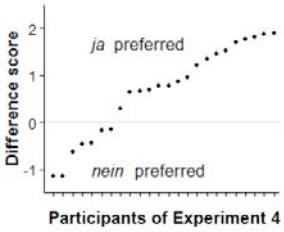


6.5 Group differences

Evidence for different behavior of participants

- Difference scores for each participant: Mean rating of *nein* – mean rating of *ja*
- z-value transformation

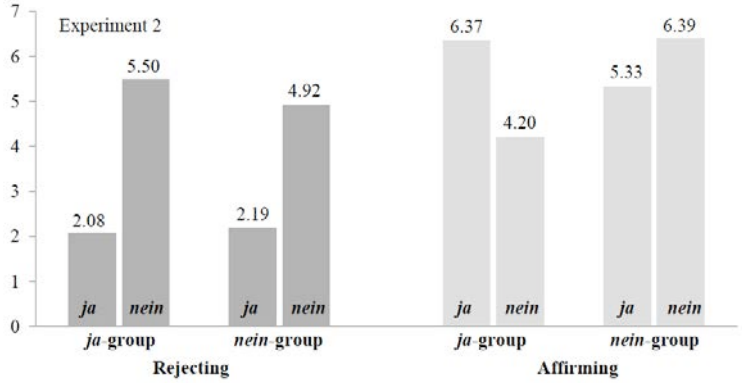




Two groups:

- *ja*-group (majority) prefers *ja* as affirming particle to negative antecedent
- *nein*-group (minority) prefers *nein* as affirming particle to negative antecedent
- But: Not a bimodal distribution – subjects are aware of two strategies

Acceptability judgements by groups, here: Experiment 2



6.6 Revised saliency account

For negated antecedents:

(69) ⟦[*Bill* [$\overline{p}_{DR}$ t_{Bill} *doesn't* [p_{DR} t_{Bill} *smoke*]]]⟧ = ¬smoke(bill)

ja-group:

- The negated DR $\overline{p}_{DR}$ is more salient
- Reason: It is introduced by the major constituent vs. a subconstituent cf. Gordon, Hendrick, Ledoux & Yang (1999)[4] on nominal anaphora: *Mary's aunt owns a lake house where she likes to go swimming.*
- Result: *ja* preferred for affirming responses, as it picks out $\overline{p}_{DR}$

nein-group:

- No saliency differences between the two groups
- The use of *ja* is penalized, as the result is ambiguous (creates a tie) between p_{DR} and $\overline{p}_{DR}$
- With *nein*, picking up $\overline{p}_{DR}$ would result in a double negation: $\neg\overline{p}_{DR}$, to be avoided, hence *nein* picks up p_{DR} and negates it: $\neg p_{DR}$
- *doch* can only pick up a negated DRs and negates it: $\neg\overline{p}_{DR}$

[4] Gordon, Peter C. et al. 1999. Processing of Reference and the Structure of Language: An Analysis of Complex Noun Phrases. *Language and Cognitive Processes* 14: 353-379.

			Ja-group: Salient propDR = $\bar{p}_{DR}$					
	Particle	**Targeted propDR**	**Meaning**	***Tie**	***Non Sal**	***Block**	***Double Neg**	
Positive antecedent (e.g., *Bill smokes*)	*ja*	p_{DR}	p_{DR} = affirming					☜
	nein	p_{DR}	$\neg p_{DR}$ = rejecting					☜
Negative antecedent (e.g., *Bill doesn't smoke*)	*ja*	p_{DR}	p_{DR} = rejecting		*			
		$\bar{p}_{DR}$	$\bar{p}_{DR}$ = affirming					☜
	nein	p_{DR}	$\neg p_{DR}$ = affirming		*			
		$\bar{p}_{DR}$	$\neg \bar{p}_{DR}$ = rejecting			*	*	
	doch	$\bar{p}_{DR}$	$\neg \bar{p}_{DR}$ = rejecting				*	☜

			Nein-group: Saliency ($\bar{p}_{DR}$) = Saliency (p_{DR})					
	Particle	**Targeted propDR**	**Meaning**	***Tie**	***Non Sal**	***Block**	***Double Neg**	
Positive antecedent (e.g., *Bill smokes*)	*ja*	p_{DR}	p_{DR} = affirming					☜
	nein	p_{DR}	$\neg p_{DR}$ = rejecting					☜
Negative antecedent (e.g., *Bill doesn't smoke*)	*ja*	p_{DR}	p_{DR} = rejecting	*				
		$\bar{p}_{DR}$	$\bar{p}_{DR}$ = affirming	*				
	nein	p_{DR}	$\neg p_{DR}$ = affirming					☜
		$\bar{p}_{DR}$	$\neg \bar{p}_{DR}$ = rejecting			*	*	
	doch	$\bar{p}_{DR}$	$\neg \bar{p}_{DR}$ = rejecting				*	☜

6.7 No saliency differences

ja-group:

- Always picks up the propositional discourse referent that was asserted
- With negative antecedents, this is $\bar{p}_{DR}$
- doch expresses negation of negated DR: $\neg\bar{p}_{DR}$

nein-group:

- *ja/nein* always pick up the TP discourse referent of the antecedent
- With negative antecedents, this is p_{DR}
- *nein* picks up p_{DR} and negates it: $\neg\ p_{DR}$
- *doch* is like *ja* but requires presence of a negated propDR, $\bar{p}_{DR}$ picks up p_{DR} and affirms it: p_{DR}

6.8 Question antecedents

Low negation questions:

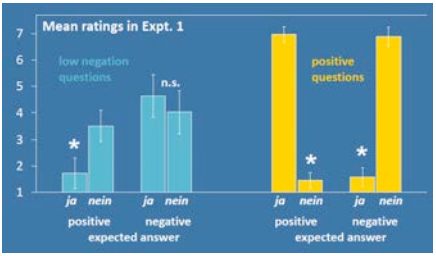
- Example: *Has the gardener not sown the lawn yet?*
- Two propositional discourse referents, p_{DR} and $\bar{p}_{DR}$

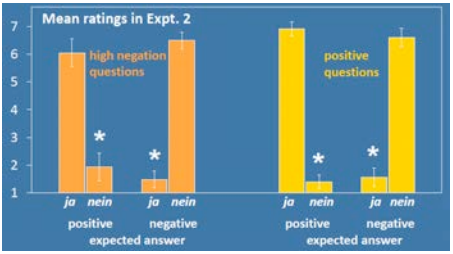
High negation question:

- Example: *Hasn't the gardener sown the lawn already?*
- High negation is not propositional, hence only one propDR: p_{DR}

Two experiments:

- Low negation questions similar to negated assertions as antecedents
- High negation questions similar to non-negated assertions as antecedents





Experimental data on ja / nein: Question antecedents

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