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:

✦ Bare particles reduced in acceptability in (3), no better than yes.
✦ Both yes and no both preferably interpreted as ‘S₂ did not steal the cookie’


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1.2 Approaches to polarity items

Classics:

Some recent contributions:
✦ 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

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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) S₁: *Ede stole the cookie.*
    S₂: [ΣP Yes [ΣP Σ [TP he did [ the steal the cookie]]]]

Ellipsis phrase ΣP with head Σ, adverbial yes.

(5) S₁: *Ede did not steal the cookie.*
    S₂: [ΣP No [u NEG] [ΣP Σ [u NEG] [TP he didn’t [i NEG] [ the 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) S₁: *Ede did not steal the cookie.*
    S₂: [ΣP Yes / No [u NEG] [ΣP Σ [u NEG] [TP he didn’t [i NEG] [ the 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) S₁: *Ede stole the cookie.*
    S₂: #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:
\( \varphi = \text{`Ede stole the cookie'} \)

\( S_2: \) Yes. Confirms \( \varphi \).
\( \quad \) No. Rejects \( \varphi \).

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: \( \{\varphi, \neg \varphi\} \)

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?* \( \{\varphi, \neg \varphi\} \); contextually salient: \( \varphi \), due to highlighting.

\( S_2: \) Yes. a. Confirms highlighted proposition, asserts \( \varphi \).
\( \quad \) No. b. Reverses highlighted proposition, asserts \( \neg \varphi \).

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?* \( \{\varphi, \neg \varphi\} \), where \( \neg \varphi \) identifiable as negated proposition.

\( S_2: \) Yes. [AGREE, +]
\( \quad \) a. Confirms highlighted proposition, here \( \neg \varphi \).
\( \quad \) a'. Reverses highlighted neg. proposition, i.e. asserts \( \varphi \).

\( \quad \) No. [REVERSE, −]
\( \quad \) b. Reverses highlighted proposition, i.e. asserts \( \varphi \).
\( \quad \) b'. Confirms highlighted neg. proposition, i.e. asserts \( \neg \varphi \).

* 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) **S₁**: Peter called. / Did Peter call?
    **S₂**: Yes, he did. / *No, he did.
    [AGREE, +] cannot be realized by no
    **S₂**: *Yes, he didn’t. / No, he didn’t.
    [REVERSE, –] cannot be realized by yes

(2) **S₁**: Peter didn’t call. / Did Peter not call?
    **S₂**: Yes, he DID. / No, he DID.
    yes realizes [+], no realizes [REVERSE]
    **S₂**: 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) **S₁**: Susan failed the exam. / Did Susan fail the exam? true prejacent
    **S₂**: Yes, she did not pass. / *No, she did not pass.
    failed the exam is elided

(4) **S₁**: Does Igor speak English↑ or French↓?
    two highlighted
    **S₂**: *Yes (he speaks English) / *No (he speaks French). antecedent propositions

Roelofsen & Farkas 2015: Polarity features and their uses 9 / 51

Roelofsen & Farkas 2015: Explanation of English data 10 / 51
4 Response Particles as Anaphora: Krifka 2013

4.1 Propositional discourse referents

Discourse referents: Entities, Events, Propositions, and Acts


(13) \[\text{DP } \text{A man} \text{ came in. He stole } \text{DP a cookie}. \]

- Discourse referents for events, introduced by tenseless vPs:

(14) \[\text{TP } \text{He steal-PAST } [\text{vP the tsteal a cookie}]]. \text{ Bill saw it.} \]

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

(15) \[\text{TP } \text{He stole a cookie]. Bill knows it.} \]

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

(16) \[\text{S}_1: [\text{ActP ASSERT He stole a cookie.}] \text{ S}_2: \text{ That's a lie!} \]

Complete analysis, except for entity DRs:

(17) \[\text{He stole a cookie.} \]

\[\text{[ActP ASSERT [TP he steal-PAST [vP the tsteal a cookie]]]} \]

(18) \[\text{Did he steal a cookie?} \]

\[\text{[ActP did-QUEST [TP he did-PAST [vP the tsteal a cookie]]]} \]
4.2 Propositional discourse referents and negation

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

\(19\) \([\text{NegP } he \, did-n't \, [\text{TP } t_{\text{Ede} \, t_{\text{did} \, steal \, the \, cookie}]}]\)
\(\overset{\text{d}_{\text{prop}}}{\rightarrow} \overset{\text{d}_{\text{prop}}}{\rightarrow} d'_{\text{prop}}\)

Evidence for introduction of two propositional discourse referents with negation:

\(20\) Two plus two isn't five.  
\(\overset{\text{d}_{\text{prop}}}{\rightarrow} \overset{\text{d}_{\text{prop}}}{\rightarrow} d'_{\text{prop}}\)

\(\uparrow d'_{\text{[2+2=5]}}\)

a. Everyone knows that.

\(\overset{\text{d}_{\text{prop}}}{\rightarrow} \overset{\text{d}_{\text{prop}}}{\rightarrow} d_{\text{prop}}\)

b. That would be a contradiction.

\(\uparrow d_{\text{[2+2=5]}}\)

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

\(21\) Two plus two is unequal to five.  
\(\overset{\text{d}_{\text{prop}}}{\rightarrow} \overset{\text{d}_{\text{prop}}}{\rightarrow} d_{\text{prop}}\)

a. Everyone knows that.

\(\uparrow d_{\text{[2+2=5]}}\)

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).

\(22\) \([\text{NegP } he \, did-n't \, [\text{TP } t_{\text{Ede} \, t_{\text{did} \, steal \, a \, cookie}]}]\)
\(\overset{\text{d}_{\text{prop}}}{\rightarrow} \overset{\text{d}_{\text{prop}}}{\rightarrow} d'_{\text{prop}[\text{neg}]}\)
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) S₁: [ActP did-QUEST [TP he t дир-PAST [vP the t steal a cookie]]]

     ┌─────────────────────────┐
     │                         │
     │ d_prop                  │
     │ ───> d'_event           │

S₂: a. [ActP yes], = ASSERT(d)

     ┌────────────────────┐
     │                    │
     │ d_prop             │
     │ ↑                  │

  b. [ActP ASSERT [TP he did [[vP the t steal the cookie] / [DP it]]]]

     ┌─────────────────────────┐
     │                         │
     │ d_event                  │
     │ ───> d'_event            │

  c. [ActP yes], [ActP ASSERT [TP he did [[vP the t steal the cookies] / [DP it]]]]

     ┌─────────────────────────┐
     │                         │
     │ d_prop                  │
     │ ───> d'_event           │

Response Particles as Anaphora: Krifka 2013: 15 / 51
4.6 Response particles with adverbials

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

(27) $S_2$: $[[\text{ActP ASSERT} \ [\text{TP} \ \text{maybe}] \ [\text{TP} \ \text{he stole the cookie}]]]$

$\uparrow \text{d}_{\text{prop}}$

(28) $S_2$: $\#[[\text{ActP yes}] \ [, \ \text{ActP ASSERT} \ [\text{TP} \ \text{maybe}] \ [\text{TP} \ \text{he stole the cookie}]]]$

inappropriate, as first part asserts $\text{d}$, second asserts $\neg \text{d}$

(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:

$\uparrow$ English: *yes, no* are anaphoric ActP

$\uparrow$ 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?*

$S_2$: $[[\text{ActP ASSERT} \ [\text{TP} \ \text{ja}] ] ]$

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. {[[\text{ActP ASSERT} \ [\text{TP} \ \text{ja}] ] ] [\text{ActP ASSERT} \ [\text{TP} \ \text{manchmal} \ [\text{TP} \ \text{st. er K}]] ]}$

Manchmal ja. $[[\text{ActP ASSERT} \ [\text{TP} \ \text{manchmal} \ [\text{TP} \ \text{ja}]] ] ]$
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 \( \text{ASSERT}(d) \)
    b. [ActP *no*] requires salient discourse referent \( d_{prop} \), interpreted as \( \text{ASSERT}(\neg d) \)

Recall introduction of discourse referents in negated clauses:

(36) [ActP ASSERT [NegP *he did-n't* [TP *the did steal a cookie*]]]

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(\(\neg d\)) ‘No (he didn’t).’ Natural answ, ellipt. clause not required
    d. No. ASSERT(\(\neg d'\)) ‘No, he did!’ Requires rejecting accent, with clause.

These judgements arise due to certain preferences:

(38) a. \(*\text{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. \(*\text{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 \(*\text{DISAGR} is ranked above \(*\text{NEGDR}

<table>
<thead>
<tr>
<th>expression</th>
<th>reference</th>
<th>resulting meaning</th>
<th>*DISAGR</th>
<th>*NEGDR</th>
<th>Favorite</th>
</tr>
</thead>
<tbody>
<tr>
<td>a yes</td>
<td>d</td>
<td>‘He did.’</td>
<td>*</td>
<td>((\psi))</td>
<td></td>
</tr>
<tr>
<td>b yes</td>
<td>d'</td>
<td>‘He didn’t.’</td>
<td>*</td>
<td>((\psi))</td>
<td></td>
</tr>
<tr>
<td>c no</td>
<td>d</td>
<td>‘He didn’t.’</td>
<td></td>
<td>(\alpha)</td>
<td></td>
</tr>
<tr>
<td>d no</td>
<td>d'</td>
<td>‘He did.’</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

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) \[ \text{did QUEST} \left[ \text{NegP he not} \left[ \text{TP the steal the cookie} \right] \right] \]?

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).
<table>
<thead>
<tr>
<th>expression</th>
<th>reference</th>
<th>resulting meaning</th>
<th>*NEGDR</th>
<th>*DISAGF</th>
<th>Favorite</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>yes</td>
<td>d</td>
<td>'He did.'</td>
<td>*</td>
<td>(¬ψ)</td>
</tr>
<tr>
<td>b</td>
<td>yes</td>
<td>d'</td>
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</tr>
<tr>
<td>c</td>
<td>no</td>
<td>d</td>
<td>'He didn’t.'</td>
<td>*</td>
<td>(¬ψ)</td>
</tr>
<tr>
<td>d</td>
<td>no</td>
<td>d'</td>
<td>'He did.'</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>


(43) S₁: Didn’t Ede steal some cookie?

\[ \text{[ActP did-REQUEST [NegP not [ActP Ede ASSERT [TP tEde steal some cookie]]]]} \]

Only one propDR is introduced; negation interpreted as speech-act operator; S₁ requests from S₂ to denegate the assertion that Ede stole some cookie.

Predicted answer pattern:

(44) S₂: a. Yes (he did).
     b. No (he didn’t).
     c. *No, he did.
     d. *Yes, he didn’t.

Response Particles as Anaphora: Krifka 2013: Response particles to questions with negation

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) S₁: Er hat einen Keks gestohlen.  ‘He stole a cookie.’
    S₂: Ja.
        ‘He did steal a cookie.’
        Nein.
        ‘He did not steal a cookie.’
        *Doch.

(46) S₁: Er hat keinen Keks gestohlen.  ‘He did not steal a cookie.’
    S₂: Ja.
        ‘He did not steal the cookie.’
        Nein.
        ‘He did steal the cookie.’
        Doch.

(47) S₁: Es fehlt ein Keks.  ‘A cookie is missing.’
    S₂: 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.

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\(^2\) The assumption that *doch* presupposes two salient propositional discourse referents, d, ¬d is probably too strict, as ¬d can be accommodated in certain cases.

S₁: *Hat Ede denn (etwa) einen Keks gestohlen?* S₂: *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.

<table>
<thead>
<tr>
<th>expression</th>
<th>reference</th>
<th>resulting meaning</th>
<th>*PRES</th>
<th>BLOCK</th>
<th>*NEGDR</th>
<th>Favorite</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>ja</td>
<td>d</td>
<td>‘He did.’</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>ja</td>
<td>d’</td>
<td>‘He didn’t.’</td>
<td>* ((\sim))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>nein</td>
<td>d</td>
<td>‘He didn’t.’</td>
<td>(\sim)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>nein</td>
<td>d’</td>
<td>‘He did.’</td>
<td>* ((\sim))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>doch</td>
<td>d</td>
<td>‘He did.’</td>
<td>(\sim); blocking of a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>doch</td>
<td>d’</td>
<td>‘He didn’t.’</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

S₁: Er hat den Keks 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.

Response Particles as Anaphora: Krifka 2013: The German particle doch

4.11 Narrow-scope negation

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

(51) S₁: John sometimes / purposely did not show up for work.
S₂: 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) S₁: 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.’
S₂: Doch. ‘Every dentist IS rich.’ (= \(\sim\)(ii.)).

Explanation: Only reading (ii) introduces 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) S₁: *Did Ede NOT steal a cookie?*
S₂: 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. S₁: *John wa hashitte imasu ka?*  
    ‘Is John running?’
    b. S₂: *Hai (, hashitte imasu).* ‘Yes (, he is running)’

b. S₁: *John wa hashitte imasen ka?*  
    ‘Is John not running?’
    a. S₂: *Hai (, hashitte imasen).* ‘Yes (, he is not running)’
    b. S₂: *iie (, hashitte imasen).* ‘No (, he is not 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.
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 [the t steal steal a cookie]]]
\(S_2: \) a. [ActP ASSERT [this is right / wrong]]
\(\uparrow \) d
b. [ActP Right.], making the same speech act as d, performed by B.

Other kinds of response particles: right and wrong

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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) S₁: *He stole the cookie.*
S₂: *uh-huh.*

Notice: *uh-huh* is weaker than *yes*; does not commit S₂ to the proposition; works as a backchaneling signal (Ward 2006).

But it can also be used like *yes*:

(62) S₁: *Did he steal the cookie?*
S₂: *uh-huh.*

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

(63) S₁: *He stole the cookie. Did he steal the cookie?*
S₂: *Uh-uh.*

Proposal:

- The speech act of assertion is a combination of two separate acts (Krifka 2015):
  
  (64) S₁, to S₂: *He stole the cookie.*
  a. S₁ commits himself/herself to the truth of the proposition ‘he stole the cookie’
  b. S₁ wants that the proposition becomes common ground between S₁ and S₂.

  (65) \[\text{ActP COMMIT}_{S₁} + \text{COMGROUND}_{S₁, S₂} [\text{TP} \text{he steal-PAST} [\text{VP} \text{the tsteal a cookie}]]]
  \[\Rightarrow \text{d}_{\text{act}} \Rightarrow \text{d'}_{\text{prop}} \Rightarrow \text{d}''_{\text{prop}} \Rightarrow \text{d}'''_{\text{prop}}\]
  where d'''_{prop}: ‘he stole a cookie’
  d'_{prop}: ‘S₁ is committed to the proposition d'''.
  d''_{prop}: ‘the proposition d'' is part of the common ground of S₁ and S₂.
  d_{act}: S₁ 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 S₂ has reasons to assume that d''' is false, hence ASSERT(¬d'') and ASSERT(¬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) S₁: *Steal a cookie!*
   S₂: *Yes. / No. / Uh-huh. / Uh-uh.*

Proposal:
◆ S₁ imposes a commitment on S₂ for the action to steal a cookie (Barker 2012).

(67) \[ \text{ActP COMMIT}_{S₂} \ [vP steal a cookie]\]

where d′ prop: ‘S₂ is committed to the action of stealing a cookie’.

With answers *yes / no* (also *uh-huh / uh-uh*), S₂ asserts this proposition or its negation.

5.5 okay

(68) a. S₁: *He stole a cookie.*   S₂: Okay.
    b. S₁: *He did not steal a cookie.*   S₂: Okay.
    c. S₁: *Did he steal a cookie?*   S₂: *Okay. / Okay... he did.*
    d. S₁: *Steal a cookie!*   S₂: Okay.

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

S₁: \[\text{ActP COMMIT}_{S₁} + \text{COMGROUND}_{S₁,S₂} \ [TP he stole a cookie]]\]. S₂: *Okay.*

where dact: S₁ 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

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

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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.*

Rejecting: *NEIN, he hasn’t sown the lawn already.*

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Experimental data on *ja / nein*: Experiment 1: positive antecedent
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*).

Experimental data on *ja* / *nein*: Experiment 2: negative antecedent

6.3 Experiment 3: negative antecedent, with *doch*
Results for rejecting answers:

- *ja* 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

![Graph showing difference in ratings for 'ja' and 'nein' in neutral and negative contexts.](image)

Experimental data on *ja* / *nein*: Bare particle responses to negated antecedents

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

![Graph showing difference scores for *ja* and *nein* across participants.](image)

Experimental data on *ja* / *nein*: Group differences
Acceptability judgements by groups, here: Experiment 2

![Graph showing experimental data on ja / nein: Group differences](chart)

6.6 Revised saliency account

For negated antecedents:

(69) \[
\text{⟦[Bill [p_{DR} t_{Bill} \text{ doesn't } [p_{DR} t_{Bill} \text{ smoke}]]]]} = \neg \text{smoke(bill)}
\]

ja-group:
- The negated DR \( p_{DR} \) is more salient
- Reason: It is introduced by the major constituent vs. a subconstituent
- Result: \( ja \) preferred for affirming responses, as it picks out \( p_{DR} \)

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 \( p_{DR} \)
- With \( nein \), picking up \( p_{DR} \) would result in a double negation: \( \neg p_{DR} \), to be avoided, hence \( nein \) picks up \( p_{DR} \) and negates it: \( \neg p_{DR} \)
- \textit{doch} can only pick up a negated DRs and negates it: \( \neg p_{DR} \)

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6.7 No saliency differences

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

**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 \( \neg p_{DR} \)

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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