German *doch*: An element that triggers a contrast presupposition[*]

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1   Introduction

This paper discusses the relationship between the German particles *doch* and *ja*, focusing on the former of the two, *doch*. It argues for a specific analysis of *doch* which makes predictions both on the semantic distribution of *doch* versus *ja* and on the syntactic ordering restrictions between *doch* and *ja*. The core analysis is presented in section 2. Section 3 shows how it predicts the complementary distribution of *doch* and *ja* in certain contexts, and section 4 shows how it predicts the ordering restrictions that we find when these two particles co-occur.

2   The Core Analysis of unstressed *doch* in German

This paper focuses on the unstressed version of the German particle *doch*, cf. Abraham (1991), Bárány (2009), Doherty (1985, 1987), Jacobs (1991), Karagjosova (2001, 2004, 2008), Lindner (1991), Ormelius-Sandblom (1997), Repp (2009), Thurmair (1989) and Zeevat (2003), for recent discussions and proposals. I propose to analyze *doch* as stated in (1) below. This analysis incorporates the common assumption that *doch* has a function of marking its complement proposition *p* as 'familiar/old/given/shared/uncontroversial' and of conveying some notion of 'contrast/correction'. It assumes that *doch* triggers an *uncontroversiality* presupposition, precisified in (1a), and a *correction* presupposition, given in (1b). In words, *doch p* presupposes that *p* is uncontroversial in some sense and that *p* corrects a salient *q*. Note that these presuppositions are not Stalnakerian presuppositions (Stalnaker 1974), but rather 'expressive presuppositions' (see Kratzer & Matthewson 2009); in this sense, the statement *is an established fact* does not mean *is in the common ground*[1].

(1)   **Semantics of doch**
    For any sentence *p*, $\|doch\ p\|^c$ (where c is the utterance context) is only defined if:
    a. The speaker in *c* takes *p* to be firmly established in w_c and therefore assumes that it is safe to discard $\neg p$ as a possible answer to the question of whether *p* or $\neg p$ holds in w_c.
        (based on Kratzer & Matthewson's 2009 meaning of *ja*)

[1] It is difficult to say what *it is an established fact* does mean (cf. Kratzer & Matthewson 2009), but in the case of *doch*, it must be compatible at least with the hearer having a different opinion, which the speaker refutes as obviously wrong. It must also cover propositions that are not salient and potentially forgotten by the hearer. We will see more on this notion later in this paper.

b. There is a contextually salient proposition q, such that
  i. q is a focus alternative of p
  ii. the current utterance context c entails $\neg$ [p and q]
If defined, $\|doch\ p\|^{c} = \|p\|^{c}$.

The first meaning component in (1a) implements the common assumption that the complement proposition of *doch* is old information. The novelty of my proposal is that I equate this meaning of *doch* with the meaning of *ja*, as understood by Kratzer & Matthewson (2009). As I show in section 3, this entails that the semantics of *ja* is a proper subset of the semantics of *doch*, which makes correct predictions on their distribution.

The specific implementation of correction that I give in (1b-ii) has predecessors in Abraham (1991), Bárány (2009), Doherty (1985) and Ormelius-Sandblom (1997), who also assume that *doch p* corrects a salient q that entails $\neg\,p$. The novelty of the proposal in (1b) is that I explicitly assume that q is a focus alternative of p, cf. (1b-i), which I argue (in section 4) derives ordering restrictions between *ja* and *doch*.

Examples of *doch* are given below, together with the respective analysis according to (1). As shown in (2), *doch p* can be uttered in juxtaposition with the negation of q, thereby indicating a causal link between the two (namely $\neg\,q$, *because p*). A typical context in which (2) would be appropriate is one where co-habitants observe strict division of labor, so *whoever washes up, doesn't have to cook*. The focus for calculating the focus alternatives would (by assumption) project as high as a deontic modal auxiliary, so *Jan needs to cook* and *Jan washed up* are focus alternatives.

(2) a. *Jan muss nicht kochen. Er hat doch abgewaschen.*
       J.   needs not   cook   he has DOCH washed.up
       'Jan doesn't need to cook. He [DOCH] washed up.'
       conveys: 'Jan doesn't need to cook, because he washed up.'
    b. *presuppositions triggered by doch:*
       i. the speaker takes [$_p$ Jan washed up] to be firmly established in w_c
       ii. there is a contextually salient focus alternative of p, namely [$_q$ Jan needs to cook], and the current utterance context entails $\neg$ [$_{p\&q}$ Jan washed up and Jan needs to cook]

However, a speaker can also contradict a hearer's opinion by means of a *doch* statement, shown in (3). In this case, the idea that *doch p* marks p an established fact needs to be understood in the sense that the speaker considers p obvious or evident (i.e. p is established from the speaker's point of view), fully aware that the hearer maintains or even asserts $\neg\,p$. Given that it is presupposed that p is established, the speaker forces the hearer to either accommodate p (thus refuting his/her own prior $\neg p$-statement) or to object to the speaker's statement. For

calculating the focus alternatives, we can assume narrow focus in this case, giving us the focus alternatives *these flowers are ugly* and *these flowers are beautiful*.

(3) a. *A: Schau   mal! Diese Blumen sind so   hässlich.*
        look   MAL these flowers are so   ugly.
        'Have a look! These flowers are so ugly.'
     B: Was   hast du   denn? Diese Blumen sind doch   schön!
        what have you   DENN these flowers are   DOCH beautiful
        'What's your problem? These flowers are [DOCH] beautiful!'
   b. *presuppositions triggered by doch:*
      i. the speaker takes [$_p$ these flowers are beautiful] to be firmly established in w_c (e.g. provided that both the speaker and the hearer can see the flowers, and the speaker has an egocentric view where the hearer's taste judgments are irrelevant)
      ii. there is a contextually salient focus alternative of p, namely [$_q$ these flowers are ugly], and the current utterance context (trivially) entails ¬ [$_{p\&q}$ theses flowers are beautiful and these flowers are ugly]

Note that the salient alternative q that *doch p* presupposes can be contextually provided, as in (4), or even a presupposition of some preceding utterance, as in (5). In (4), *doch* would be associating with wide, sentential focus, so the relevant question that describes the focus alternatives would be *what is the case?* or specifically, *what is the case today?* In contrast, for (5), we can assume that *doch* associates with the verum focus, so the actual focus alternatives are equivalents of *it is true that p* and *it is false that p*.

(4) a. Context: I wake up on a Sunday at 6AM, because the neighbors are drilling.
        Heute ist doch   Sonntag!
        today is DOCH Sunday
        'Today is [DOCH] Sunday!' (roughly: 'But today is Sunday!')
   b. *presuppositions triggered by doch:*
      i. the speaker takes [$_p$ today is Sunday] to be firmly established in w_c
      ii. there is a contextually salient focus alternative of p, namely [$_q$ today it's ok to drill], and the current utterance context entails ¬ [$_{p\&q}$ today is Sunday and today it's ok to drill]

(5) a. *A: Wann kommt der Erzherzog von Chicago nach Boston?*
        when comes the archduke of Chicago to   Boston
        'When does the archduke of Chicago come to Boston?'
     B: Es   gibt doch   keinen Erzherzog von   Chicago!
        it   gives DOCH no   archduke of   Chicago
        'There is [DOCH] no archduke of Chicago!'

b. *presuppositions triggered by doch:*
 i. the speaker takes [$_p$ there is no archduke of Chicago] to be firmly established in w_c
 ii. there is a contextually salient focus alternative of *p,* namely [$_q$ there is an archduke of Chicago], and the current utterance context (trivially) entails ¬ [$_{p\&q}$ there is no archduke of Chicago and there is an archduke of Chicago]

3 The meaning of *doch* includes the meaning of *ja*

This section studies the first presupposition triggered by *doch*, namely that its complement proposition *p* is an established fact (in the Kratzer & Matthewson 2009 sense). It argues that the meaning of *doch* properly includes the meaning of *ja* and shows that this makes the right predictions on their distribution.

By finding a core meaning component that is a shared part of the semantics of both *doch* and *ja,* we can reduce the idiosyncrasy inherent to the German particle inventory. More generally, this is an advance in a search for building blocks of the cross-linguistic typology of discourse particles, which after all seem to form a closed class in all languages that have them.

The crucial communality between *ja* and *doch* is that both presuppose that the modified proposition is already established in some sense, i.e. its negation is no longer under consideration (from the speaker's point of view). Examples that support this assumption are given in (6) (I crucially focus on cases where the speaker can choose whether to convey correction or not, thus allowing for either *ja* or *doch,* which will be relevant more later). In (6a), where the modified proposition is shared knowledge, the particles *ja* and *doch* are acceptable, whereas a lack of particles is pragmatically odd (given that it is unnecessary to assert shared information). In (6b), where new information is expressed, the particles *ja* and *doch* are ill-formed, whereas stressed *DOCH* (which lacks the uncontroversiality component) is acceptable and lack of particles is tolerable.

(6) a. Context: Speaker and hearer are both well aware that the hearer has been to Paris before, and the speaker wants to make this fact salient in order to follow up on it.
   Du warst ja / doch / #DOCH / #Ø schon in Paris.
   you were JA / DOCH / #DOCH / #Ø already in Paris.
   'You've (JA / DOCH / #DOCH / #Ø) already been to Paris.'
  b. Context: The hearer is an amnesiac and believes that she has never been to Paris. The speaker doesn't know whether the hearer has been, and discovers an old flight ticket to Paris with the hearer's name on it.
   Du warst #ja / #doch / DOCH / Ø schon in Paris.
   you were #JA / #DOCH / DOCH / Ø already in Paris.
   'You've (#JA / #DOCH / DOCH / Ø) already been to Paris.'

A general debate in the literature is whether *ja* or *doch* impose restrictions on knowledge states (e.g. the hearer's knowledge or the speaker's knowledge), and if so, whether *ja* and *doch* differ in this regard. I argue that neither of them imposes restrictions on the hearer's knowledge state, based on the following example from Kratzer & Matthewson (2009) (their example only contains *ja* and not *doch*). The relevant intuition is that not only *ja*, but also *doch*, are perfectly acceptable in such contexts, the latter typically accompanied with a hand-waving, shrugging gesture; note that *doch* in (7) improves if *schließlich* 'after all' is inserted.

(7) Context: You are talking to a new colleague who doesn't know you and talking about how it's hard to go on holidays. You say:
Wir   müssen   immer   irgendwen   finden,   der   sich   um
we   must   always   someone   find   who   self   about
unsere Tiere   kümmert.
our   animals   cares
'We always have to find someone who takes care of our animals.'
Wir   haben   ja /   doch   (schließlich)   zwei   Katzen.
we   have   JA /   DOCH   (after.all)   two   cats
'(After all) we have [JA / DOCH] two cats.'
(adapted from Kratzer & Matthewson 2009:3)

Particularly typical occurrences of *doch* in utterances that provide hearer-new information are experience reports, where the speaker recalls a recent experience[2].

(8) Context: The speaker tells a recent story that the hearer cannot possibly have heard before.
Jetzt   hör   dir   an,   was   ich   erlebt   habe! Das   wirst
now   listen you V.PRT what I   experienced have   that   will
du   nicht   glauben.   Otto   hat   doch   tatsächlich   angerufen   und
you   not   believe   Otto   has   DOCH   really   called   and
sich   entschuldigt.
self   apologized
'Now listen to what I experienced! You won't believe this. Otto [DOCH] really called and apologized.'

Also, *doch* behaves like *ja* in that both can be used in "surprise" contexts, where neither the hearer nor the speaker have prior knowledge of the modified proposition, shown in (9).

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[2] Note that this experience report is an example where *doch* cannot be replaced by *ja*. As we will see below, this follows if such experience reports with *doch* obligatorily convey correction. In the present case, the speaker clearly intends to correct the speaker's own *prior* expectation that Otto would never call and apologize (i.e. the salient proposition q that is falsified would be something like: *Otto didn't call and apologize*).

(9) Context: Speaker and hearer are at a party, believing that Hans is currently in Paris. Suddenly the speaker notices Hans talking to the host.
Das ist ja / doch der Hans! Was macht der hier?
that is JA / DOCH the Hans what does he here
'That's [JA/DOCH] Hans over there! What is he doing here?'

The fact that *ja p* (and also *doch p*) imposes no requirement on hearer or speaker knowledge underlies the idea of Kratzer & Matthewson (2009) that the relevant presupposition is just one where the negation of the modified proposition is not considered as a possibility. This can be due to the fact (in (9)) that the truth of *p* is obvious, or alternatively to the fact (in (7) and (8)) that the speaker knows that *p* is true and that the hearer is not in a position to commit to either *p* or ¬ *p*.

What follows from this approach is that, in sum, *ja* triggers one presupposition, namely uncontroversiality, whereas *doch* triggers two presuppositions, uncontroversiality and correction. Assuming a pragmatic rule such as *Maximize Presupposition* (Heim 1991), the following distribution emerges for cases where only one of the two particles is used (see below for combinations of *ja* and *doch*): Whenever the speaker wants to convey correction, *doch* must be used, as it has a correction presupposition that *ja* lacks, illustrated in (10); whenever the speaker does not want to convey correction, *ja* must be used, as the correction presupposition of *doch* is not licensed, shown in (11). In the latter case, the hearer understands that no correction is intended (which can be considered a type of scalar implicature).

(10) *A: Wir fahren morgen ans Meer!*
        we drive tomorrow to.the sea
        'We're going to the seaside tomorrow!'
      B: Wie denn das? Du musst doch / #ja morgen arbeiten.
        how DENN that you must DOCH / #JA tomorrow work
        'How so? You [DOCH / #JA] have to work tomorrow.'

(11) *A: Ich kann morgen nicht mit euch mitkommen.*
        we drive tomorrow to.the with you come
        'I can't come with you tomorrow.'
      B: Ich weiß eh. Du musst ja / #doch morgen arbeiten.
        I know EH you must JA / #DOCH tomorrow work
        'I know. You [JA / #DOCH] have to work tomorrow.'

Further illustrations for this distribution of *ja* and *doch* are given in (12), where correction is intended, versus (13), where correction is not intended. (These examples are based on Thurmair 1989:108.)

(12) A: *An   mir ist gar   nichts   besonders!*
         about me   is   absolutely nothing   special
         'Absolutely nothing about me is special!'
     B: *Du   hast   doch /   #ja   grüne   Augen!*
         you have   DOCH /   #JA   green   eyes
         'You have [DOCH / #JA] green eyes!'

(13) Context: The speaker sees the hearer for the first time in bright sunlight
     and realizes the hearer's eye color.
     Du   hast   ja /   #doch   grüne   Augen!
     you   have   JA /   #DOCH   green   eyes
     'You have [JA / #DOCH] green eyes!'

Clearly, there are cases where *ja* and *doch* are not in competition. One extreme
case is given in (14). Examples like (14) have been used to argue against an
obligatory correction component of *doch* (cf. Bárány 2009 for a recent overview
and discussion). However, the analysis defended here (*doch* is required by
Maximize Presupposition when correction is intended, whereas only *ja* is possible
when no correction is intended) can be applied to such examples as well, by
assuming that they optionally encode correction of sorts.

(14) In an out-of-the-blue context:
     Hallo Otto! Du   hast   doch /   ja   letztes   Jahr   ein   Mörike-
     hi   Otto   you have   DOCH /   JA   last   year   a   Mörike-
     Seminar besucht. Kann   ich   da   mal   die   Unterlagen   haben?
     seminar attended can   I   there MAL   the   notes   have
     'Hi Otto! You [DOCH / JA] attended a Mörike seminar last year. Can I
     borrow your notes?'
     (slightly modified from Thurmair 1989:113)

The idea with respect to (14) is that the speaker can choose to make a focus
alternative *q* salient such as *I am mistaken and you didn't attend a Mörike
seminar*, which contradicts the modified *p* statement, licensing *doch p* (see
Bárány 2009:102 for an analogous approach). The relevant focus here is wide
sentential focus (described by the question *what is the case?*).
    Given that we need to assume that (at least) the uncontroversiality component
of *ja* and *doch* is expressive in nature (as argued for *ja* by Kratzer 1999, and
maintained as a possibility by Kratzer & Matthewson 2009) rather than a
Stalnakerian presupposition, we expect that it can be uttered iteratively, on a par
with *damn* in *this damn damn dog* (see Potts 2005). This accounts for the

possibility of co-occurring *ja* and *doch*[3]. The prediction is that the modified proposition is conveyed to be *very firmly* established (with emphasis), given that *being established* is the expressive meaning that is expressed twice. This does seem to be the case, as Lindner (1991:193) observes that *ja doch* is 'more powerful' and more intense than the use of either *ja* or *doch* on its own, illustrated in (15), where *ja doch* is used for rhetoric reasons.

(15) *Sie, als Akademiker, sind ja doch intelligent.*
      you as academic are JA DOCH intelligent
      'There is no doubt whatsoever that you as an academic are intelligent
      […so why do you say nonsense like that?]'

4.   Ordering restrictions follow from association with focus

This section shows that ordering restrictions on co-occurring *ja* and *doch* follow from the fact that *doch* (but not *ja*) lexically associates with focus. Crucially, it can be argued that the proposition *q*, which *doch p* presupposes to be false, must be a focus alternative of *p* rather than any contextually salient alternative.

The finding that semantic properties such as association with focus can be used to derive ordering restrictions on co-occurring discourse particles is progress in the sense that we no longer have to stipulate that *ja* is higher than *doch* in the CP; rather, we can actually derive it from semantic properties of these elements.

Recall that *doch* has a correction meaning component that *ja* lacks, which can be summarized as follows. An utterance of *doch p* presupposes a contextually salient focus alternative *q*, such that the current utterance context entails ¬ [*p and q*] (from which follows the falsity of *q*). This analysis assumes that *doch* behaves like more familiar elements such as *auch* 'also' in that it establishes a semantic link between two alternative propositions, *p* and *q*. While *auch* 'also' assumes a parallel, *doch* requires contrast of sorts; this is particularly clear in (16) versus (17), where (out of the blue) the relative polarity of the propositions *p* and *q* indicates whether there is a parallel, as in (16), or a contrast, as in (17).

(16) a. *Jan hat gekocht. Er hat auch / #doch geputzt.*
          Jan has cooked he has also / #DOCH cleaned
          'Jan cooked. He also / #DOCH cleaned.' (q, p)
      b. *Jan hat nicht gekocht. Er hat auch / #doch nicht geputzt.*
          Jan has not cooked he has also / #DOCH not cleaned
          'Jan didn't cook. He also / #DOCH didn't clean.' (¬q, ¬p)

(17) a. *Jan hat gekocht. Er hat doch / #auch nicht geputzt.*
          Jan has cooked he has DOCH / #also not cleaned
          'Jan cooked. He DOCH / #also didn't clean.' (q, ¬p)

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[3] An open question is naturally why we cannot have multiple instances of *ja* or *doch* within one clause, but this might just be due to independent constraints on which expressives can be repeated.

b. *Jan hat nicht gekocht. Er hat doch / #auch geputzt.*
Jan has not cooked he has DOCH / #also cleaned
'Jan didn't cook. He DOCH / #also cleaned.' (¬q, p)

In addition to the observation that *doch* encodes contrast, we can show that it encodes a specific type of contrast, namely *contradiction between p and q* (which implies that an activation of *p* corrects a contextually salient *q*). In the diagnostic example, (18), *p and q* is asserted to be explicitly possible (in fact, *p typically entails q*). In such a context, *doch* is ill-formed, although simple contrast (without *doch*) can be expressed. (A rhetorical break is required for independent reasons.)

(18) *So gut wie jeder Atheist ist liberal und grün. Hans*
as good as every atheist is liberal and green Hans
ist die Ausnahme. Er ist nicht liberal. Er ist nicht grün.
is the exception he is not liberal he is not green
-- *Er ist (#doch) Atheist!*
-- he is (#DOCH) atheist
'As good as every atheist is liberal and green. Hans is the exception. He is not liberal. He is not green. -- He is (#DOCH) an atheist.'

Example (18) is explained by the assumption that *doch* presupposes that the context entails ¬ [*p and q*], where *p* is *Hans is an atheist* and *q* is *Hans is liberal and green*. This presupposition is not justified, as the context entails that with a high probability *p and q* is the case, rather than its negation.

Based on these observations, we can show that *doch* lexically associates with focus. The corrective meaning of *doch* outlined above implies that it can be used for emphasis in explicit verbal reasoning, as given in (19).

(19) *Schema of Reasoning with doch*
  i. ¬[p&q]
  ii. therefore ¬q, because *doch* p

We can use such reasoning schemas to argue for lexical association with focus. Beaver & Clark (2008) argue that an element that lexically associates with focus cannot associate with reduced elements or traces. They take this to explain why (20b) is ill-formed with reduced *'im*, whereas (20a) is well-formed: The particle *only*, but not the adverb *always*, lexically associates with focus (in contrast to the common assumption that both of them do).

(20) You can see Bush, but do you see Cheney?
  a. Yes, I ALways see'im / see HIM.
  b. I can ONly #see'im / see HIM.
     (Beaver & Clark 2008:158)

We can now show that reasoning with *doch* becomes ill-formed when *doch* cannot associate with focus to yield the relevant focus alternative. This can happen because of reduction, cf. (21e), or because of extraction, cf. (21f).

(21) a. *p* = Hans kissed Anna today.
  b. *q* = Hans kissed Helga today.
  c. *Hans küsst jeden Tag entweder Anna oder Helga, aber*
    Hans kisses every day either Anna or Helga but
    niemals beide.
    never both
    'Every day Hans kisses Anna or Helga, but never both' ($\Rightarrow \neg[p\&q]$)
    Daher hat er heute nicht Helga geküsst, ...
    therefore has he today not Helga kissed ...
    'Therefore he didn't kiss Helga today, ...' (*therefore ¬q, ...*)
  d. Association with focus
    ... weil's heut die Anna ist, für die gilt, dass
    ... because'it today the Anna is for who holds that
    er (doch) [SIE]_F geküsst hat.
    he DOCH HER kissed has
    '...because today it is Anna for who it's the case [that he (DOCH) kissed HER].'
  e. Failure to associate with a reduced element
    ... weil's heut die Anna ist, für die gilt, dass
    ... because'it today the Anna is for who holds that
    er 's (#doch) geküsst hat.
    he 'her #DOCH kissed has
    '...because today it is Anna for who it's the case [that he (#DOCH) kissed _her_].'
  f. Failure to associate with an extracted element
    ... weil's heut die Anna ist, die_7 er (#doch) t_7
    ... because'it today the Anna is who he #DOCH
    geküsst hat.
    kissed has
    '...because today it is Anna [who_7 he (#DOCH) kissed t_7].'

Having thus argued that *doch* lexically associates with focus, this establishes an asymmetry between *ja* and *doch*. The locus of lexical association with focus is in the correction presupposition of *doch* (when selecting the relevant alternative *q*), which *ja* lacks. The question is whether this might inform our analysis of another asymmetry, namely the well-known fact (see Thurmair 1989) that *ja doch* is a possible linear order, when the two particles co-occur, but *doch ja* is not.

(22) *Sie   sind   ja doch /   *doch ja   ein   Akademiker.*
      you   are   JA DOCH /   *DOCH JA   an   academic
      'You are JA DOCH / *DOCH JA an academic'

Note that this restriction also holds in "open" particle combinations, where two co-occurring discourse particles are separated by intervening material (e.g. noun phrases).

(23) a. *Dann   hat   ja   der   Hans   der   Anna   doch   geschrieben.*
         then   has   JA   the   Hans   the   Anna   DOCH   written
         'Then JA DOCH Hans wrote Anna.'
     b. **Dann   hat   doch   der   Hans   der   Anna   ja   geschrieben.*
         *then   has   DOCH   the   Hans   the   Anna   JA   written
         *'Then DOCH JA Hans wrote Anna.'

This is not due to restrictions on *ja/doch* occurring lower/higher in the clause:

(24) a. *Dann   hat   der   Hans   der   Anna   ja   geschrieben.*
         then   has   the   Hans   the   Anna   JA   written
         'Then JA Hans wrote Anna.'
     b. *Dann   hat   doch   der   Hans   der   Anna   geschrieben.*
         then   has   DOCH   the   Hans   the   Anna   written
         'Then DOCH Hans wrote Anna.'

I propose that these ordering restrictions follow from the assumption made below that *ja* cannot interfere between *doch* and the focus that *doch* associates with; this entails that *ja doch* is a possible order and *doch ja* is not if we make the following two auxiliary assumptions. First, discourse particles (like other adverbs) do not scopally interact, implying that their surface position reflects their scope position. Secondly, *ja* and *doch* must be interpreted with a high scope (in the CP domain), as argued for *ja* in Zimmermann (2004a, 2004b). Therefore, even if *doch* associates with wide sentential focus, *ja* will still interfere if the order is *doch ja*.

   Empirical support for the core claim that *ja* must not interfere between *doch* and the focus stems from the observation that *ja* quite generally does not seem to be well-formed when placed between an element that lexically associates with focus and the respective focus, shown for *nur* 'only' in (25).

(25) A: *Haben   alle   Gewerkschaftsmitglieder   ihren   Job   verloren?*
         have   all   union.members   their   job   lost
         'Did all union members lose their jobs?'

B: *Nein. Stacy hat ihren Job nur verloren, weil* sie
no Stacy has her job only lost because she
(*ja) in der Gewerkschaft der CHEMIEARBEITER war.
*JA in the union of chemical.workers was
'No. Stacy only lost her job, because she was (*JA) in the union of CHEMICAL WORKERS.'

≈ 'The chemical worker's union was such that being in it was the cause for Stacy's losing her job; if she had been in any other union, this wouldn't have caused her to lose her job.'

Crucially, if *ja* is part of the focus (in which case it evidently does not intervene between *nur* 'only' and the focus), this effect disappears, shown in (26).

(26) A: *Hätte Stacy ihren Job auf jeden Fall verloren?*
had Stacy her job in any case lost
'Would Stacy have lost her job under any circumstances?'

B: *Nein. Stacy hat ihren Job nur verloren,* [*weil* sie
no Stacy has her job only lost because she
ja in der Gewerkschaft der CHEMIEARBEITER war]F.
JA in the union of chemical.workers was
'No. Stacy only lost her job, because she was JA in the union of CHEMICAL WORKERS.'

≈ 'The circumstance of Stacy being in the chemical worker's union was the cause for Stacy's losing her job; under any other circumstances, she wouldn't have lost her job.'

Parallel observations can be made for *doch* and *ja*, confirming that *doch* is a particle very much like *nur* when it comes to association with focus. Example (27) is a case where *ja* interferes between *doch* and the focus.

(27) A: *Haben nur Mitglieder der Gewerkschaft der*
have only members of.the union of.the
Gemeindebediensteten ihren Job verloren?
magistrates their job lost
'Did only members of the union of magistrates lose their jobs?'

B: *Nein. Stacy hat ihren Job doch verloren, weil* sie
no Stacy has her job DOCH lost because she
(*ja) in der Gewerkschaft der CHEMIEARBEITER war.
*JA in the union of chemical.workers was
'No. Stacy [DOCH] lost her job, because she was (*JA) in the union of CHEMICAL WORKERS.'

In contrast, (28) is a case where *ja* is part of the focused constituent and thus well-formed in the scope of *doch*.

(28) A: *Hat   Stacy ihren Job   ohne   Grund verloren?*
      has   Stacy her   job   without reason lost
      'Did Stacy lose her job without any reason?'

     B: *Nein. Stacy hat ihren Job doch   verloren, [weil   sie*
      no   Stacy has her   job DOCH lost   because she
      *ja   in der Gewerkschaft der CHEMIEARBEITER war]*F.
      JA   in the union   of   chemical.workers   was
      'No. Stacy [DOCH] lost her job, because she was [JA] in the union of CHEMICAL WORKERS.'

A possible explanation for these facts might be that *ja* becomes part of every focus alternative if it is located between *nur* 'only' / *doch* and the focus; the resulting reading would be nonsensical, given that it would mean that every single focus alternative is an 'established fact', which is trivially false.

    Alternatively, one might attempt to provide a uniform analysis for these intervention effects and the ones that Kratzer (1999) observes, who argues that *ja* operates on complete propositions and cannot occur between a quantifier and a variable that it binds.

(29) a. *Stacy hat ihren Job verloren, weil   sie ja in   der*
       Stacy has her   job lost   because she JA in   the
       Gewerkschaft war.
       union   was
       'Stacy lost her job, because she was [JA] in the union.'
       (Kratzer 1999:5)

     b. *Keiner von diesen Arbeitern hat seinen Job verloren,*
       none   of   these   workers   has his   job lost
       *weil   er (*ja) in der Gewerkschaft war.*
       because he (*JA) in the union   was
       'None of these workers lost his job, because he was (*JA) in the union.'
       (Kratzer & Matthewson 2009:14, based on Kaufmann's 2004 suggested modification of Kratzer's 1999:5 example)

Independent from the eventual explanation that these facts should receive, it seems that *ja* does not seem to be allowed between the focus and an element that lexically associates with it. This explains why *ja doch* is a possible ordering of the two particles, whereas *doch ja* is not.

5 Conclusion

In this paper I have argued for two main claims regarding the meaning of the German particle *doch*. First, I have argued that it shares a presuppositional/expressive meaning component with the particle *ja*, namely that the modified proposition *p* is an established fact. Secondly, it has an additional meaning component that *ja* lacks, which crucially requires *doch* to lexically associate with focus. This second meaning component is a presupposition that there is a salient focus alternative *q* which contradicts the modified proposition *p*.

I have shown that the first claim correctly predicts a complementary distribution of (non-co-occurring) *ja* and *doch* in situations where the speaker has to commit to expressing or not expressing the correction component that *doch* (but not *ja*) conveys. Furthermore, finding a shared meaning component of *ja* and *doch* allows us to reduce idiosyncrasy in the description of German discourse particles, thus making headway in the search for a cross linguistic typology of the functional meanings that discourse particles express.

I have also shown that the second claim enables us to account for ordering restrictions between co-occurring *ja* and *doch*, if we make the empirically justified assumption that *ja* cannot interfere between an element that lexically associates with focus and the focus. Given that *doch* lexically associates with focus and *ja* does not, it follows that *ja doch* is a possible order, whereas *doch ja* is ill-formed. Additional assumptions, such as scope rigidity and a high LF position for *ja* and *doch*, are independently justified.

We can conclude that the present discussion sheds new light on the semantic and syntactic properties (i.e. their meaning components and their ordering restrictions respectively) of discourse particles such as German *ja* and *doch*.

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